

SI-MNH-955a  
3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 13 July 1964 Total Minutes: 314 Total Miles 51

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>51</u>	<u>944</u>	<u>18.51</u>	<u>18.51</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
33	15	2	17	20 <sup>b</sup>	169	4	32	6.24	11.27	2.00	1.88	1.04	3.31	.08	.63

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
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IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>21</u>	<u>726</u>	<u>34.57</u>	<u>14.20</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
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VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
4	-	4	-	11	-	11	-	2.75	-	2.75	-	.21	-	.21	-

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>1</u>	<u>1</u>	<u>1.00</u>	<u>.02</u>

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>6</u>	<u>869</u>	<u>.17</u>	<u>4</u>	<u>825</u>	<u>.06</u>

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 14 July 1964 Total Minutes: 789 Total Miles 125

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>60</u>	<u>196</u>	<u>3.27</u>	<u>1.57</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>50</u>	<u>24</u>	<u>22</u>	<u>11</u>	<u>105</u>	<u>56</u>	<u>33</u>	<u>11</u>	<u>2.10</u>	<u>2.33</u>	<u>1.50</u>	<u>1.00</u>	<u>.84</u>	<u>.45</u>	<u>.26</u>	<u>.09</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>1</u>	<u>-</u>	<u>-</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>1.00</u>	<u>-</u>	<u>-</u>	<u>.01</u>	<u>-</u>	<u>-</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>11</u>	<u>87</u>	<u>7.91</u>	<u>.70</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u> </u>	<u> </u>	<u> </u>	<u> </u>

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>2</u>	<u>3</u>	<u>1.50</u>	<u>.02</u>

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>4</u>	<u>114</u>	<u>.03</u>	<u>2</u>	<u>102</u>	<u>.02</u>

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 15 July 1964 Total Minutes: 774 Total Miles 145

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>415</u>	<u>190</u>	<u>4.22</u>	<u>1.21</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>44</u>	<u>8</u>	<u>34</u>	<u>-</u>	<u>152</u>	<u>23</u>	<u>63</u>	<u>-</u>	<u>3.45</u>	<u>2.88</u>	<u>1.85</u>	<u>-</u>	<u>1.05</u>	<u>.16</u>	<u>.43</u>	<u>-</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
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IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>3</u>	<u>38</u>	<u>12.67</u>	<u>.26</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
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VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
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VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
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VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>4</u>	<u>132</u>	<u>.03</u>	<u>2</u>	<u>117</u>	<u>.61</u>

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 16 July 1964 Total Minutes: 754 Total Miles 140

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
44	171	3.89	1.22

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
41	11	27	-	117	64	44	-	2.85	5.82	1.63	-	.84	.46	.31	

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
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IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
4	54	13.50	.39

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
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VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
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VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
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VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
1	116	.01	1	116	.01

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AT SEA SURVEY CHART A

DATE: 17 July 1964

Total Minutes: 764

Total Miles 127

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>15</u>	<u>17</u>	<u>1.13</u>	<u>.13</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>14</u>	<u>5</u>	<u>6</u>	<u>-</u>	<u>16</u>	<u>5</u>	<u>6</u>	<u>-</u>	<u>1.14</u>	<u>1.00</u>	<u>1.00</u>	<u>-</u>	<u>.13</u>	<u>.04</u>	<u>.05</u>	<u>-</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>1</u>	<u>1</u>	<u>-</u>	<u>1</u>	<u>1</u>	<u>-</u>	<u>1.00</u>	<u>1.00</u>	<u>-</u>	<u>.01</u>	<u>.01</u>	<u>-</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>0</u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 18 Feb 1964 Total Minutes: 777 Total Miles 137

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>44</u>	<u>285</u>	<u>6.43</u>	<u>2.07</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>40</u>	<u>6</u>	<u>36</u>	<u>-</u>	<u>199</u>	<u>164</u>	<u>131</u>	<u>-</u>	<u>4.98</u>	<u>10.67</u>	<u>3.64</u>	<u>-</u>	<u>1.45</u>	<u>.47</u>	<u>.76</u>	<u>-</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>3</u>	<u>3</u>	<u>-</u>	<u>3</u>	<u>3</u>	<u>-</u>	<u>1.00</u>	<u>1.00</u>	<u>-</u>	<u>.02</u>	<u>.02</u>	<u>-</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>3</u>	<u>81</u>	<u>27.00</u>	<u>.59</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>4</u>	<u>225</u>	<u>103</u>	<u>4</u>	<u>225</u>	<u>103</u>

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 19 July 64 Total Minutes: 391 Total Miles 118

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
48	382	7.96	3.24

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
40	12	25	-	185	71	65	-	4.63	5.92	2.60	-	1.37	.63	.55	-

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
4	1	2	4	1	2	1.00	1.00	1.00	.03	.01	.02

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
6	191	31.83	1.62

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
1	1	1.00	.01

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
1	1	1.00	.01

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
4	323	.03	4	323	.03

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 20 July 64 Total Minutes: 784 Total Miles 121

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
33	910	27.58	7.52

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
27	13	6	1	242	145	151		8.96	11.15	2.50	1	2.00	1.20	.12	.01

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
2	1	1	2	1	1	1.00	1.00	1.00	.02	.01	.01

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
13	613	47.15	5.48

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
2	3	1.50	.02

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
7	879	.06	7	579	.06



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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 21 July 64 Total Minutes: 792 Total Miles 122

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>26</u>	<u>200</u>	<u>572</u>	<u>1.69</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>20</u>	<u>6</u>	<u>17</u>	<u>3</u>	<u>69</u>	<u>16</u>	<u>31</u>	<u>5</u>	<u>273</u>	<u>200</u>	<u>1.82</u>	<u>100</u>	<u>.55</u>	<u>.13</u>	<u>.24</u>	<u>.03</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>2</u>	<u>2</u>	<u>-</u>	<u>2</u>	<u>2</u>	<u>-</u>	<u>1.00</u>	<u>1.00</u>	<u>-</u>	<u>.07</u>	<u>.07</u>	<u>-</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>8</u>	<u>135</u>	<u>16.88</u>	<u>1.11</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>2</u>	<u>2</u>	<u>1.00</u>	<u>.02</u>

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>5</u>	<u>127</u>	<u>.04</u>	<u>1</u>	<u>87</u>	<u>.01</u>

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 22 July 64 Total Minutes: 793 Total Miles 130

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>62</u>	<u>427</u>	<u>6.89</u>	<u>3.28</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>55</u>	<u>9</u>	<u>53</u>	<u>-</u>	<u>150</u>	<u>19</u>	<u>131</u>	<u>-</u>	<u>2.73</u>	<u>1.59</u>	<u>2.47</u>	<u>-</u>	<u>1.15</u>	<u>.13</u>	<u>1.01</u>	<u>-</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>2</u>	<u>1</u>	<u>1</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>1.50</u>	<u>1.00</u>	<u>2.00</u>	<u>.02</u>	<u>.01</u>	<u>.02</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>11</u>	<u>273</u>	<u>24.82</u>	<u>2.10</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
<u>1</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>1</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>1.00</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>.01</u>	<u>-</u>	<u>-</u>	<u>-</u>

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>12</u>	<u>348</u>	<u>.09</u>	<u>9</u>	<u>325</u>	<u>.07</u>

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 23 July 64 Total Minutes: 770 Total Miles 171

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>37</u>	<u>138</u>	<u>3.73</u>	<u>.98</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>35</u>	<u>4</u>	<u>31</u>	<u>-</u>	<u>55</u>	<u>7</u>	<u>47</u>	<u>-</u>	<u>1.57</u>	<u>1.75</u>	<u>1.52</u>	<u>-</u>	<u>.39</u>	<u>.05</u>	<u>.33</u>	<u>-</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>4</u>	<u>83</u>	<u>20.75</u>	<u>.59</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>3</u>	<u>89</u>	<u>.02</u>	<u>2</u>	<u>84</u>	<u>.01</u>

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3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 20 July 64 Total Minutes: 753 Total Miles 138

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>37</u>	<u>57</u>	<u>1.54</u>	<u>.41</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
35	15	20	-	49	17	27	-	1.40	1.13	1.35	-	.36	.12	.20	-

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>11</u>	<u>8</u>	<u>2.00</u>	<u>.06</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
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VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
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VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>2</u>	<u>18</u>	<u>.01</u>	<u>1</u>	<u>13</u>	<u>.01</u>

SI-MNH-955a  
3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 25 July 64

Total Minutes: 763

Total Miles 120

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
59	204	3.46	1.70

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
59	11	42	1	194	51	13	1	3.29	4.64	3.12	.00	1.62	.43	1.09	.01

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
2	10	5.00	10.8

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
2	125	.02	2	125	.02

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3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 26 July 1964 Total Minutes: 773 Total Miles 125

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
23	27	1.17	.22

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
22	2	14	0	23	2	15	0	1.05	1.00	1.07	0	.18	.02	.12	0

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
1	4	4.00	.03

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
0	0	0	0	0	0

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 27 July 64

Total Minutes: 785

Total Miles 126

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>25</u>	<u>37</u>	<u>1.48</u>	<u>.29</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>23</u>	<u>0</u>	<u>19</u>	<u>0</u>	<u>35</u>	<u>0</u>	<u>31</u>	<u>0</u>	<u>1.52</u>	<u>0</u>	<u>1.63</u>	<u>0</u>	<u>.28</u>	<u>0</u>	<u>.25</u>	<u>0</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>1</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>1.00</u>	<u>1.00</u>	<u>0</u>	<u>.01</u>	<u>.01</u>	<u>0</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>1</u>	<u>1</u>	<u>1.00</u>	<u>.01</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>1</u>	<u>5</u>	<u>.01</u>	<u>1</u>	<u>5</u>	<u>.01</u>

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 28 July 64 Total Minutes: 797 Total Miles 146

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>23</u>	<u>147</u>	<u>6.39</u>	<u>1.42</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>19</u>	<u>0</u>	<u>14</u>	<u>0</u>	<u>74</u>	<u>0</u>	<u>64</u>	<u>0</u>	<u>3.89</u>	<u>0</u>	<u>4.57</u>	<u>0</u>	<u>.51</u>	<u>0</u>	<u>.44</u>	<u>0</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>3</u>	<u>2</u>	<u>1</u>	<u>3</u>	<u>2</u>	<u>1</u>	<u>1.00</u>	<u>1.00</u>	<u>1.00</u>	<u>.02</u>	<u>.01</u>	<u>.01</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>4</u>	<u>70</u>	<u>17.50</u>	<u>.49</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>5</u>	<u>126</u>	<u>.83</u>	<u>3</u>	<u>114</u>	<u>.82</u>



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3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 22 July 64

Total Minutes: 814

Total Miles 159

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>14</u>	<u>217</u>	<u>15.50</u>	<u>1.36</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>7</u>	<u>0</u>	<u>3</u>	<u>1</u>	<u>57</u>	<u>0</u>	<u>5</u>	<u>1</u>	<u>8.14</u>	<u>0</u>	<u>1.67</u>	<u>1.00</u>	<u>.36</u>	<u>0</u>	<u>.63</u>	<u>.01</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>4</u>	<u>3</u>	<u>1</u>	<u>4</u>	<u>3</u>	<u>1</u>	<u>1.00</u>	<u>1.00</u>	<u>1.00</u>	<u>.03</u>	<u>.62</u>	<u>.01</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>4</u>	<u>156</u>	<u>39.00</u>	<u>1.98</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>1</u>	<u>200</u>	<u>.01</u>	<u>1</u>	<u>200</u>	<u>.01</u>

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 30 July 64 Total Minutes: 800 Total Miles 89

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
13	17	1.31	.19

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
5	0	1	2	5	1	2		1	-	1	1	.06		.01	.02

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
6	3	2	6	3	2	1	1	1	.07	.03	.02

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
1	5	5.00	.06

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
-	-	-	-

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
-	-	-	-

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
1	5	.01	-	-	-

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 31 July 64 Total Minutes: 800 Total Miles 142

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>22</u>	<u>81</u>	<u>3.68</u>	<u>.57</u>

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
<u>16</u>	<u>5</u>	<u>2</u>	<u>1</u>	<u>31</u>	<u>11</u>	<u>2</u>	<u>1</u>	<u>1.94</u>	<u>2.70</u>	<u>1</u>	<u>1</u>	<u>.22</u>	<u>.08</u>	<u>.01</u>	<u>.01</u>

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
<u>3</u>	<u>2</u>	<u>1</u>	<u>3</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>.02</u>	<u>.01</u>	<u>.01</u>

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>5</u>	<u>43</u>	<u>8.60</u>	<u>.30</u>

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
<u>3</u>	<u>4</u>	<u>1.33</u>	<u>.03</u>

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
<u>3</u>	<u>58</u>	<u>.02</u>	<u>3</u>	<u>58</u>	<u>.02</u>

SI-MNH-955a  
3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART A

DATE: 1 August 64 Total Minutes: 300 Total Miles 68

I. Total Abundance of birds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
123	368	2.99	5.41

II. Abundance of the Shearwater-Petrel-Albatross Group:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	WT	P	B	T	WT	P	B	T	WT	P	B	T	WT	P	B
52	49	0	6	100	89	0	6	1.91	1.82	0	1.00	1.47	1.31	0	0.09

III. Abundance of Tropicbirds:

No. Sightings			No. Birds			Birds/Sighting			Birds/Mile		
T	RT	WT	T	RT	WT	T	RT	WT	T	RT	WT
3	2	1	3	2	1	1.00	1.00	1.00	.04	.03	.01

IV. Abundance of Terns:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile
75	258	3.44	3.79

V. Abundance of Shorebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VI. Abundance of Boobys:

No. Sightings				No. Birds				Birds/Sighting				Birds/Mile			
T	BF	RF	B	T	BF	RF	B	T	BF	RF	B	T	BF	RF	B
6	0	5	1	7	0	5	2	1.17	0	1.00	2.00	1.0	0	.07	.03

VII. Abundance of Frigatebirds:

No. Sightings	No. Birds	Birds/Sighting	Birds/Mile

VIII. Abundance of Flocks:

Total No. Flocks	Total No. Birds	Total No. F/Mi.	No. Feeding Flocks	No. Feeding Birds	No. Feeding F/MI.
4	138	.06	2	119	.02

SI-MNH-955b  
3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 13 July 64

Time at sunrise = <sup>1400</sup> Position at sunrise = 21°19'N 157°28'W

Time at sunset = <sup>1914</sup> Position at sunset = 20°50'N 157°29'W

Miles traveled from 0000 hours to sunrise = —

Miles traveled from sunrise to sunset = 51

Miles traveled from sunset to 2400 hours = 74

TIME OF FIX      TYPE OF FIX      LONGITUDE      LATITUDE

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

DATE 13 July 64

Time at sunrise = <sup>2129</sup> Position at sunrise = 19°29'N 157°28'W

Time at sunset = <sup>1907</sup> Position at sunset = 17°24'N 157°20'W

Miles traveled from 0000 hours to sunrise = 69

Miles traveled from sunrise to sunset = 125

Miles traveled from sunset to 2400 hours = 51

TIME OF FIX      TYPE OF FIX      LONGITUDE      LATITUDE

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART B

DATE 15 July 64

Time at sunrise = <sup>0605</sup> Position at sunrise = 15° 23' N 154° 59' W  
Time at sunset = <sup>1859</sup> Position at sunset = 13° 08' N 157° 02' W  
Miles traveled from 0000 hours to sunrise = 60  
Miles traveled from sunrise to sunset = 145  
Miles traveled from sunset to 2400 hours = 32

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.			
2.			
3.			
4.			
5.			
6.			

DATE 16 July 64

Time at sunrise = <sup>0612</sup> Position at sunrise = 11° 21' N 157° 01' W  
Time at sunset = <sup>1845</sup> Position at sunset = 10° 28' N 154° 55' W  
Miles traveled from 0000 hours to sunrise = 65  
Miles traveled from sunrise to sunset = 140  
Miles traveled from sunset to 2400 hours = 55

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.			
2.			
3.			
4.			
5.			
6.			

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 17 July 64

Time at sunrise = <sup>0602</sup> Position at sunrise = 10°55'N 153°57'W

Time at sunset = <sup>1846</sup> Position at sunset = 12°02'N 154°08'W

Miles traveled from 0000 hours to sunrise = 61

Miles traveled from sunrise to sunset = 127

Miles traveled from sunset to 2400 hours = 43

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
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1.

2.

3.

4.

5.

6.

DATE 18 July 64

Time at sunrise = <sup>0556</sup> Position at sunrise = 14°41'N 153°54'W

Time at sunset = <sup>1853</sup> Position at sunset = 16°58'N 154°00'W

Miles traveled from 0000 hours to sunrise = 56

Miles traveled from sunrise to sunset = 137

Miles traveled from sunset to 2400 hours = 38

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
-------------	-------------	-----------	----------

1.

2.

3.

4.

5.

6.

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3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 19 July 64

Time at sunrise = <sup>0548</sup> Position at sunrise = 18°44'N 153°59'W

Time at sunset = <sup>1859</sup> Position at sunset = 20°42'N 154°01'W

Miles traveled from 0000 hours to sunrise = 68

Miles traveled from sunrise to sunset = 118

Miles traveled from sunset to 2400 hours = 50

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
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1.

2.

3.

4.

5.

6.

DATE 20 July 64

Time at sunrise = <sup>0543</sup> Position at sunrise = 22°27'N 153°59'W

Time at sunset = <sup>1847</sup> Position at sunset = 23°31'N 152°53'W

Miles traveled from 0000 hours to sunrise = 55

Miles traveled from sunrise to sunset = 121

Miles traveled from sunset to 2400 hours = 43

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
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1.

2.

3.

4.

5.

6.



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3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART B

DATE 21 July 64

Time at sunrise = <sup>0528</sup> Position at sunrise = 23° 26' N 151° 06' W  
Time at sunset = <sup>1842</sup> Position at sunset = 21° 28' N 151° 01' W  
Miles traveled from 0000 hours to sunrise = 55  
Miles traveled from sunrise to sunset = 122  
Miles traveled from sunset to 2400 hours = 59

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.			
2.			
3.			
4.			
5.			
6.			

DATE 22 July 64

Time at sunrise = <sup>0537</sup> Position at sunrise = 19° 35' N 150° 57' W  
Time at sunset = <sup>1840</sup> Position at sunset = 17° 23' N 151° 01' W  
Miles traveled from 0000 hours to sunrise = 54  
Miles traveled from sunrise to sunset = 130  
Miles traveled from sunset to 2400 hours = 48

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.			
2.			
3.			
4.			
5.			
6.			

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3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE

23 July 64

Time at sunrise =

0544

Position at sunrise =

15° 32' N 150° 39' W

Time at sunset =

1834

Position at sunset =

12° 11' N 151° 34' W

Miles traveled from 0000 hours to sunrise =

59

Miles traveled from sunrise to sunset =

147

Miles traveled from sunset to 2400 hours =

40

TIME OF FIX

TYPE OF FIX

LONGITUDE

LATITUDE

1.

2.

3.

4.

5.

6.

DATE

24 July 64

Time at sunrise =

0544

Position at sunrise =

11° 30' N 151° 30' W

Time at sunset =

1822

Position at sunset =

10° 30' N 148° 33' W

Miles traveled from 0000 hours to sunrise =

67

Miles traveled from sunrise to sunset =

138

Miles traveled from sunset to 2400 hours =

63

TIME OF FIX

TYPE OF FIX

LONGITUDE

LATITUDE

1.

2.

3.

4.

5.

6.

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3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART B

DATE 25 July 64

Time at sunrise = <sup>0538</sup> Position at sunrise =  $10^{\circ} 48' N$   $177^{\circ} 54' W$   
Time at sunset = <sup>1931</sup> Position at sunset =  $12^{\circ} 23' N$   $174^{\circ} 05' W$   
Miles traveled from 0000 hours to sunrise = 50  
Miles traveled from sunrise to sunset = 120  
Miles traveled from sunset to 2400 hours = 46

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

DATE 26 July 64

Time at sunrise = <sup>0534</sup> Position at sunrise =  $11^{\circ} 00' N$   $175^{\circ} 29' W$   
Time at sunset = <sup>1927</sup> Position at sunset =  $10^{\circ} 45' N$   $175^{\circ} 00' W$   
Miles traveled from 0000 hours to sunrise = 16  
Miles traveled from sunrise to sunset = 125  
Miles traveled from sunset to 2400 hours = 45

	TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.				
2.				
3.				
4.				
5.				
6.				

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 27 July 1964

Time at sunrise = <sup>0527</sup> Position at sunrise = 18° 36' N 147° 32' W

Time at sunset = <sup>1832</sup> Position at sunset = 20° 02' N 147° 50' W

Miles traveled from 0000 hours to sunrise = 60

Miles traveled from sunrise to sunset = 126

Miles traveled from sunset to 2400 hours = 60

TIME OF FIX      TYPE OF FIX      LONGITUDE      LATITUDE

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

DATE 28 July 64

Time at sunrise = <sup>0502</sup> Position at sunrise = 22° 25' N 147° 00' W

Time at sunset = <sup>1834</sup> Position at sunset = 24° 52' N 148° 00' W

Miles traveled from 0000 hours to sunrise = 46

Miles traveled from sunrise to sunset = 144

Miles traveled from sunset to 2400 hours = 40

TIME OF FIX      TYPE OF FIX      LONGITUDE      LATITUDE

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 29 July 64

Time at sunrise = <sup>0515</sup> Position at sunrise = 22° 29' N 149° 52' W  
Time at sunset = <sup>1849</sup> Position at sunset = 25° 16' N 150° 33' W  
Miles traveled from 0000 hours to sunrise = 57  
Miles traveled from sunrise to sunset = 159  
Miles traveled from sunset to 2400 hours = 41

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.			
2.			
3.			
4.			
5.			
6.			

DATE 30 July 64

Time at sunrise = <sup>0535</sup> Position at sunrise = 24° 58' N 152° 24' W  
Time at sunset = <sup>1903</sup> Position at sunset = 25° 00' N 151° 50' W  
Miles traveled from 0000 hours to sunrise = 63  
Miles traveled from sunrise to sunset = 89  
Miles traveled from sunset to 2400 hours = 38

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
1.			
2.			
3.			
4.			
5.			
6.			

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS

AT SEA SURVEY CHART B

DATE 31 July 64

Time at sunrise = <sup>0550</sup> Position at sunrise =  $25^{\circ}00'N$   $156^{\circ}02'W$

Time at sunset = <sup>1910</sup> Position at sunset =  $23^{\circ}31'N$   $157^{\circ}01'W$

Miles traveled from 0000 hours to sunrise = 73

Miles traveled from sunrise to sunset = 142

Miles traveled from sunset to 2400 hours = 39

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
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1.

2.

3.

4.

5.

6.

DATE 1 Aug 64

Time at sunrise = <sup>0600</sup> Position at sunrise =  $21^{\circ}55'N$   $157^{\circ}04'W$

Time at sunset = <sup>1100</sup> Position at sunset =  $21^{\circ}19'N$   $157^{\circ}52'W$

Miles traveled from 0000 hours to sunrise = 58

Miles traveled from sunrise to sunset = 68

Miles traveled from sunset to 2400 hours =

TIME OF FIX	TYPE OF FIX	LONGITUDE	LATITUDE
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1.

2.

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6.

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 13 July 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100																
0200																
0300																
0400																
0500																
0600																
0700																
0800																
0900																
1000																
1100																
1200																
1300																
1400	21 19	157 58														
1500	21 13	157 54														
1600	21 03	157 47														
1700	20 53	157 39														
1800	20 43	157 31														
1900	20 37	157 24														
2000	20 35	157 30														
2100	20 35	157 30														
2200	20 34	157 25														
2300	20 34	157 17														
2400	20 34	157 17														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

71 1099

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3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 14 July 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	20 24	157 12														
0200	20 14	157 06														
0300	20 03	157 01														
0400	19 52	157 00														
0500	19 41	156 59														
0600	19 29	156 58														
0700	19 17	156 58														
0800	19 05	156 58	14		25	1019.2	24.6	21	81	6		10-6-5	25.3	15	80	5-12
0900	19 00	156 58														
1000	18 57	156 58														
1100	18 46	156 59														
1200	18 35	157 00														
1300	18 23	157 00														
1400	18 11	157 00	01		25	1017.3	23.3	21	77	6		10-5-8	25.3	20	100	5-12
1500	18 00	157 01														
1600	17 47	157 00														
1700	17 34	157 00														
1800	17 30	157 00														
1900	17 25	157 00														
2000	17 14	156 59	01		10	1017.0	23.2	21	77	5		10-5-8	25.6	19	20	5-12
2100	17 09	156 59														
2200	16 57	156 59														
2300	16 45	156 59														
2400	16 33	156 59														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS



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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 15 July 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	16 20	156 59													
0200	16 08	156 59	01	10	1016.2	25.1	21	77	2	-	70-5-5	25.6	20	70	S-12
0300	15 56	156 59													
0400	15 56	156 59													
0500	15 47	156 59													
0600	15 34	156 59													
0700	15 21	156 59													
0800	15 07	156 59	02	10	1017.1	25.0	26	100	6	-	50-5-5	25.5	20	70	S-12
0900	14 54	156 59													
1000	14 40	156 59													
1100	14 26	156 59													
1200	14 25	156 59													
1300	14 21	156 59													
1400	14 07	156 59	01	10	1015.1	26.2	22	77	4	-	70-5-5	25.5	16	50	S-12
1500	13 55	157 00													
1600	13 43	157 00													
1700	13 32	157 01													
1800	13 20	157 01													
1900	13 07	157 02													
2000	13 05	157 02	01	10	1015.0	26.3	22	77	4		70-5-5	25.7	18	70	S-12
2100	12 53	157 02													
2200	12 40	157 02													
2300	12 48	157 02													
2400	12 36	157 01													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 16 July 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	12 24	157 01													
0200	12 12	157 01	00	10	1015.0	26.0	23	83	9		70-5-5	265	18	70	E 12
0300	12 00	157 01													
0400	11 49	157 01													
0500	11 37	157 01													
0600	11 31	157 01													
0700	11 29	156 59													
0800	11 23	156 49	14	25	1013.5	25.9	23	44	6		10-5-3	266	6	110	S 12
0900	11 17	156 38													
1000	11 13	156 27													
1100	11 10	156 16													
1200	11 04	156 05													
1300	10 59	155 54													
1400	10 54	155 43	51	10	1012.0	25.9	21	75	8		10-5-2	267	12	130	SE 12
1500	10 48	155 32													
1600	10 43	155 21													
1700	10 37	155 11													
1800	10 32	155 01													
1900	10 26	154 52													
2000	10 21	154 42	50	1	1014.0	24.0	23	94	8		110-5-3	267	18	110	SE 12
2100	10 18	154 38													
2200	10 13	154 27													
2300	10 07	154 15													
2400	10 02	154 04													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 17 July 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	10 00	153 57													
0200	10 02	153 57	02	10	1012.0	266	23	83	8	-	30-3-3	265	11	120	SE 12
0300	10 15	153 57													
0400	10 29	153 57													
0500	10 42	153 57													
0600	10 55	153 57													
0700	11 08	153 58													
0800	11 19	153 59	02	10	1013.1	265	23	80	6	-	70-5-3	268	10	90	NW 12
0900	11 30	154 00													
1000	11 33	154 00													
1100	11 33	154 00													
1200	11 39	154 00													
1300	11 51	154 00													
1400	12 03	154 02	02	10	1011.6	267	24	84	6	-	50-5-3	268	12	90	N 12
1500	12 15	154 03													
1600	12 28	154 04													
1700	12 41	154 04													
1800	12 54	154 04													
1900	13 04	154 04													
2000	13 04	154 04	01	10	1014.0	261	23	82	2	-	30-5-2	263	18	90	N 12
2100	13 08	154 04													
2200	13 20	154 03													
2300	13 33	154 01													
2400	13 45	153 59													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 18 July 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	13 57	153 57													
0200	14 09	153 56	02	10	1014.0	269	21	70	3		30-5-1/2	26.4	16	70	N-12
0300	14 22	153 55													
0400	14 27	153 54													
0500	14 30	153 54													
0600	14 42	153 54													
0700	14 53	153 53													
0800	15 05	153 56	02	10	1015.0	258	21	75	4		30-5-1	26.0	17	70	N-12
0900	15 17	153 57													
1000	15 20	153 58													
1100	15 42	153 59													
1200	15 55	154 00													
1300	16 00	154 01													
1400	16 00	154 01	02	25	1014.5	259	22	78	7		50-5-1	26.5	15	70	N-12
1500	16 11	154 00													
1600	16 23	153 59													
1700	16 25	153 59													
1800	16 47	154 00													
1900	16 59	154 00													
2000	17 10	154 00	02	10	1016.1	251	22	93	2		40-5-1/2	25.1	15	70	N-12
2100	17 15	154 00													
2200	17 28	153 59													
2300	17 30	153 59													
2400	17 36	153 59													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c  
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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 19 July 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	17 47	153 57														
0200	17 58	153 58	02		10	1015.6	249	21	78	3		50-4-1/2	251	19	80	N-12
0300	18 10	153 58														
0400	18 22	153 58														
0500	18 34	153 58														
0600	18 46	153 59														
0700	18 58	153 59														
0800	18 59	153 59	03		5	1017.0	234	21	83	8		70-3-1	249	7	60	N-12
0900	19 06	153 59														
1000	19 17	154 00														
1100	19 28	154 02														
1200	19 38	154 02														
1300	19 50	154 02														
1400	20 01	154 02	03		10	1019.9	261	22	77	8		50-5-1	252	21	80	N-12
1500	20 11	154 02														
1600	20 21	154 02														
1700	20 28	154 02														
1800	20 28	154 02														
1900	20 42	154 01														
2000	20 56	154 01	00		5	1017.6	241	22	87	8		50-3-1	251	25	80	N-12
2100	21 01	154 00														
2200	21 13	154 00														
2300	21 25	154 00														
2400	21 32	154 00														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 20 July 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	21 46	154 00													
0200	21 59	153 59	02	5	1013.5	245	19	67	07		70-5-1	249	25	70	N-12
0300	21 59	153 59													
0400	22 08	153 59													
0500	22 19	153 59													
0600	22 30	153 58													
0700	22 42	153 58													
0800	22 54	153 57	52	10	1020.3	240	21	83	07		10-5-13	249	21	70	N-12
0900	23 07	153 57													
1000	23 20	153 56													
1100	23 32	153 55													
1200	23 32	153 55													
1300	23 32	153 51													
1400	23 32	153 40	03	10	1020.7	250	20	74	07		10-6-2	249	16	70	E-12
1500	23 32	153 30													
1600	23 31	153 21													
1700	23 31	153 11													
1800	23 31	153 02													
1900	23 31	152 51													
2000	23 31	152 43	01	10	1019.5	240	20	77	07		70-6-2	246	18	70	E-12
2100	23 31	152 38													
2200	23 30	152 28													
2300	23 29	152 17													
2400	23 29	152 06													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c  
3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 21 July 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	23 28	151 56														
0200	23 27	151 44	25		5	1019.1	229	20	83	8		50-6-2	244	13	50	F-12
0300	23 26	151 32														
0400	23 26	151 22														
0500	23 25	151 12														
0600	23 27	150 59														
0700	23 27	150 59														
0800	23 23	150 59	25		10	1020.1	239	21	83	5		40-6-2	244	11	25	S-12
0900	23 10	150 59														
1000	22 56	150 58														
1100	22 44	150 58														
1200	22 31	150 58														
1300	22 20	150 58														
1400	22 09	150 58	03		5	1016.6	239	23	91	7		10-6-2	246	15	40	S-12
1500	21 58	150 59														
1600	21 58	150 59														
1700	21 47	151 00														
1800	21 36	151 01														
1900	21 24	151 01														
2000	21 12	151 01	25		5	1017.0	244	22	86	8		30-5-12	246	18	25	S-12
2100	21 03	151 01														
2200	20 51	151 00														
2300	20 37	150 59														
2400	20 29	150 59														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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## SMITHSONIAN INSTITUTION

DIVISION OF BIRDS

AT SEA SURVEY CHART C

DATE

22 July 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	20 29	150 59														
0200	20 16	150 58	50		5	1015.4	240	22	88	4		30 S-1	247	13	30	S-12
0300	20 05	150 58														
0400	19 54	150 58														
0500	19 43	150 57														
0600	19 30	150 57														
0700	19 18	150 58														
0800	19 06	150 58	16		5	1015.2	243	22	86	6		50 S-1/2	249	06	50	S-12
0900	18 58	150 58														
1000	18 58	150 57														
1100	18 48	150 57														
1200	18 37	150 57														
1300	18 24	150 57														
1400	18 12	150 59	01		25	1014.3	260	23	83	3		20 S-1/2	255	07	26	S-12
1500	18 01	150 59														
1600	17 49	151 00														
1700	17 37	151 00														
1800	17 25	151 01														
1900	17 25	151 01														
2000	17 18	151 01	02		10	1014.4	250	23	82	4		100 S-1	258	06	100	S-12
2100	17 13	151 00														
2200	17 01	151 00														
2300	16 49	151 00														
2400	16 37	151 00														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS



SI-MNH-955c  
3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 23 July 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	16 25	150 59													
0200	16 12	150 59	02	—	10150	260	22	83	12	—	100-6-3	260	9	120	S-12
0300	15 59	150 58													
0400	15 59	150 58													
0500	15 47	150 57													
0600	15 34	150 55													
0700	15 21	150 52													
0800	15 08	150 50	02	10	1014.6	260	22	78	11	—	110-5-2	262	13	110	S-12
0900	14 56	150 50													
1000	14 48	150 59													
1100	14 35	150 59													
1200	14 27	150 59													
1300	14 27	151 00													
1400	14 15	151 00	15	10	1014.3	262	22	77	6	—	110-5-2	264	06	110	S-12
1500	14 02	151 01													
1600	13 50	151 02													
1700	13 37	151 04													
1800	13 24	151 05													
1900	13 13	151 06													
2000	13 02	151 03	02	10	1013.5	265	23	80	1	—	110-5-2	266	13	110	S-12
2100	13 01	151 03													
2200	13 00	151 02													
2300	12 50	151 02													
2400	12 37	151 02													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c  
3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 24 Dec 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	12 25	151 22														
0200	12 13	151 02	02		10	1014.2	263	24	86	1		10-30	26.9	16	60	S-12
0300	12 01	151 02														
0400	11 48	151 01														
0500	11 35	151 01														
0600	11 30	151 00														
0700	11 29	150 56														
0800	11 24	150 46	14		10	1013.6	272	24	82	6		10-63	27.1	17	60	S-12
0900	11 20	150 35														
1000	11 15	150 24														
1100	11 10	150 14														
1200	11 05	150 03														
1300	11 00	149 51														
1400	10 55	149 42	03		10	1013.1	274	24	81	7		10-30	27.2	16	180	SE-12
1500	10 50	149 30														
1600	10 44	149 18														
1700	10 38	149 07														
1800	10 32	148 56														
1900	10 26	148 45														
2000	10 21	148 34	01		10	1015.1	266	23	80	4		10-30	27.2	16	180	E-12
2100	10 19	148 30														
2200	10 12	148 19														
2300	10 05	148 08														
2400	09 58	147 58														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c  
3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 25 July 64

1000 - 9  
50  
1

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	10 26	147 36														
0200	10 27	147 56	16		10	1015.0	260	23	25	4		110-5-3	270	07	110	N-12
0300	10 18	147 56														
0400	10 30	147 55														
0500	10 43	147 54														
0600	10 52	147 54														
0700	11 02	147 55														
0800	11 11	147 55	18		1/4	1015.8	242	23	90	8		110-5-3	268	08	120	N-12
0900	11 21	147 55														
1000	11 25	147 57														
1100	11 29	147 58														
1200	11 30	147 59														
1300	11 51	148 01														
1400	12 01	148 01	14		5	1014.1	244	25	85	8		40-5-3	269	13	70	N-12
1500	12 12	148 02														
1600	12 22	148 03														
1700	12 33	148 04														
1800	12 44	148 05														
1900	12 55	148 06														
2000	12 56	148 06	14		5	1015.7	263	22	77	3		40-6-5	266	17	50	N-12
2100	12 59	148 06														
2200	13 08	148 06														
2300	13 21	148 06														
2400	13 34	148 06														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 26 July 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	13 47	148 06													
0200	14 00	148 07	03	10	1014.3	255	21	76	6		50-6-5	262	17	60	N-12
0300	14 12	148 07													
0400	14 24	148 07													
0500	14 36	148 07													
0600	14 48	148 07													
0700	14 43	148 06													
0800	14 55	148 05	02	10	1014.3	251	21	77	7		50-5-5	256	20	70	N-12
0900	15 07	148 04													
1000	15 19	148 03													
1100	15 31	148 01													
1200	15 43	148 00													
1300	15 55	148 58													
1400	16 09	148 56	01	10	1014.5	256	20	71	2		50-5-5	261	18	60	N-12
1500	16 23	148 55													
1600	16 35	148 53													
1700	16 28	148 53													
1800	16 40	148 52													
1900	16 52	148 51													
2000	17 03	148 50	02	5	1014.6	247	22	84	2		50-5-8	260	21	60	N-12
2100	17 10	148 50													
2200	17 21	148 50													
2300	17 30	148 50													
2400	17 30	148 50													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c  
3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 27 July 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	17 49	147 58														
0200	17 55	147 59	03		5	1015.1	240	20	78	7		40-6-8	252	17	60	N-12
0300	18 07	147 59														
0400	18 19	147 59														
0500	18 31	147 59														
0600	18 47	148 00														
0700	18 55	148 00														
0800	19 02	148 00	02		10	1016.2	242	21	77	3		50-5-5	252	17	70	N-12
0900	19 09	148 00														
1000	19 15	148 01														
1100	19 27	148 01														
1200	19 40	148 01														
1300	19 52	148 00														
1400	20 07	148 00	02		10	1014.7	245	23	77	6		50-5-5	254	21	50	N-12
1500	20 15	147 59														
1600	20 27	147 58														
1700	20 27	147 58														
1800	20 36	147 58														
1900	20 49	147 58														
2000	21 01	147 58	50		5	1019.0	243	20	77	7		50-5-5	248	19	50	N-12
2100	21 07	147 58														
2200	21 19	147 57														
2300	21 30	147 57														
2400	21 48	147 57														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 29 July 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	21 54	147 57													
0200	22 01	147 57	02	5	1016.7	23.5	18	71	8		50 3-5	73.7	20	90	N-12
0300	22 03	147 57													
0400	22 12	147 57													
0500	22 24	147 56													
0600	22 36	147 56													
0700	22 48	147 56													
0800	23 01	147 56	14	10	1014.2	23.8	18	70	8		60-5-5	2110	20	90	N-12
0900	23 12	147 56													
1000	23 25	147 57													
1100	23 36	147 57													
1200	23 33	147 57													
1300	23 45	147 58													
1400	23 57	147 58	14	10	1019.5	23.1	21	93	7		50-5-5	240	22	80	N-12
1500	24 08	148 00													
1600	24 20	148 04													
1700	24 32	148 01													
1800	24 44	148 00													
1900	24 35	148 00													
2000	25 00	148 00	63	5	1021.2	23.2	18	73	5		10-5-5	241	24	80	N-12
2100	25 00	148 00													
2200	25 09	148 00													
2300	25 20	148 00													
2400	25 33	147 59													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 29 Feb 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	25 43	147 51														
0200	25 53	147 57	01		5	1021.8	229	19	78	6		60-6-6	278	6	60	N-12
0300	25 53	147 58														
0400	25 18	147 39														
0500	25 26	147 58														
0600	25 28	147 58														
0700	26 28	148 05														
0800	25 22	148 18	03		10	1024.7	225	20	85	7		60-6-5	232	7	50	SW-12
0900	25 18	148 30														
1000	25 10	148 43														
1100	25 04	148 53														
1200	25 57	149 08														
1300	25 50	149 21														
1400	25 44	149 33	02		10	1023.1	260	20	70	6		60-6-5	238	6	110	SW-12
1500	25 38	149 47														
1600	25 32	149 59														
1700	25 26	150 11														
1800	25 20	150 23														
1900	25 15	150 35														
2000	25 09	150 45	03		10	1022.9	240	20	78	6		60-6-3	244	6	60	SW-12
2100	25 05	150 51														
2200	25 00	151 00														
2300	25 00	151 00														
2400	25 00	151 14														

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

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3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 30 July 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	24 59	151 28													
0200	24 59	151 41	02	10	1021.3	23.5	19		3		50-6-3	24.3	16	50	W-12
0300	24 59	151 55													
0400	24 59	152 06													
0500	24 58	152 17													
0600	24 58	152 30													
0700	24 57	152 43													
0800	24 57	152 55	01	10	1020.5	23.7	18		3		50-6-3	24.4	15	30	W-12
0900	24 58	153 08													
1000	24 59	153 20													
1100	24 59	153 32													
1200	24 59	153 44													
1300	24 59	153 56													
1400	24 59	154 08	02	10	1020.9	24.0	19		4		50-6-3	24.1	17	90	W-12
1500	25 00	154 20													
1600	25 00	154 32													
1700	25 00	154 44													
1800	25 00	154 56													
1900	25 00	155 08													
2000	25 00	155 20	03	10	1020.2	24.0	20		4		50-1-2	25.1	18	60	W-12
2100	25 00	155 32													
2200	25 00	155 44													
2300	25 00	155 56													
2400	25 00	156 08													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS



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3-4-64

SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 31 July 64

TIME	LAT	LONG	PRES WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	25 00	154 55													
0200	25 00	155 09	01	10	1020.5	240	19		5		50-5-3	246	15	70	W-12
0300	25 00	155 24													
0400	25 00	155 38													
0500	25 00	155 52													
0600	25 00	156 04													
0700	25 00	156 15													
0800	25 00	156 29	02	10	1020.0	240	20		4		50-6-3	248	32	100	W-12
0900	25 00	156 41													
1000	25 00	156 56													
1100	25 00	157 06													
1200	25 00	157 20													
1300	25 00	157 34													
1400	25 00	157 48	01	10	1019.8	247	21		3		50-6-3	252	16	80	S-12
1500	25 00	158 02													
1600	25 00	158 16													
1700	25 00	158 31													
1800	25 00	158 45													
1900	25 00	158 59													
2000	25 00	159 13	02	10	1018.6	252	20		3		50-5-2	256	14	80	S-12
2100	25 00	159 27													
2200	23 16	156 59													
2300	23 04	156 58													
2400	22 52	156 59													

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS

SI-MNH-955c  
3-4-64

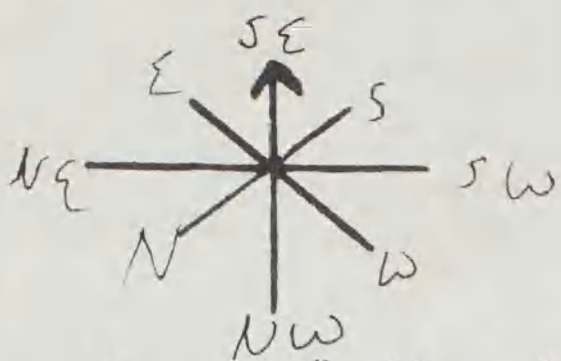
SMITHSONIAN INSTITUTION  
DIVISION OF BIRDS  
AT SEA SURVEY CHART C

DATE 1 Aug 64

TIME	LAT	LONG	PRES	WEA	VIS	SLP	DRY B	DEW PT	HUM %	TL SKY	OPA SKY	WAVES	SEA TEMP	WIND S	WIND D	SHIP COURSE/SPD.
0100	22 29	157 01														
0200	22 27	157 00														
0300	22 14	156 59														
0400	22 02	156 58														
0500	22 00	157 00														
0600	21 54	157 02														
0700	21 41	157 10														
0800	21 32	157 19														
0900	21 24	157 28														
1000	21 16	157 36														
1100	21 14	157 49														
1200	21 18	157 53														
1300																
1400																
1500																
1600																
1700																
1800																
1900																
2000																
2100																
2200																
2300																
2400																

REMARKS:

ALL TIMES LOCAL (WHISKEY); WIND DIR. IN WHOLE DEGREES; WIND SPEED IN KNOTS; TEMPERATURES IN FAHRENHEIT; VISIBILITY IN NAUTICAL MILES;  
WAVES IN WHOLE DEGREES; WAVE PERIOD IN SECONDS; WAVE HEIGHT IN WHOLE FEET; SEA LEVEL PRESSURE IN MILLIBARS



DATE 13 July 64  
Pg. # 1

time species # dir. hgt. remarks loc.

1400 begin observations

1426 Wedgetail 1 SW Light

1435 Wedgetail 3 SE light

1445 Sooty Tern 2 E light

1451 Wedgetail 1 SE

1456 Bulwers P 1 SW light

1457 Wedgetail 2 SE

1510 Sooty Tern 3 NE

1512 Sooty Tern 3 NE

1531 Sooty Tern 1 SW

1533 Noddy Tern 2 E

1542 Sooty Tern 2 SW

1550 Sooty Tern 15 ± 25

feeding flock

1 adult, 1 sub adult - sat on water

Red-footed Booby 2

Bulwers P 1

1555 Sooty Tern 2 SW

1559 Sooty Tern 1 SW

1600 Sooty Tern 2 SE

1605 Sooty Tern 1 SW

1610 Sooty Tern 1 SW

1611 Bulwers P 1 SE

1620 Sooty Tern 1 NE

1651 Sooty Tern 1 SE

1652 Bulwers P 1 E

1656 Great Frigate 1 E

1705 Sooty Tern 1 SE

1719 Wedgetail 1 E Light

Light

1723 Wedgetail 1 S Light

Light

1724 Petrel Shear 1 NE Seemingly not h

Seemingly not h

1728 Red-footed Booby 7 E

traveling together block, may have been traveling together

1728 Wedgetails 2 SE

1733 Red-footed Booby 1 NE

7  
32  
11  
77  
169  
648  

---

944

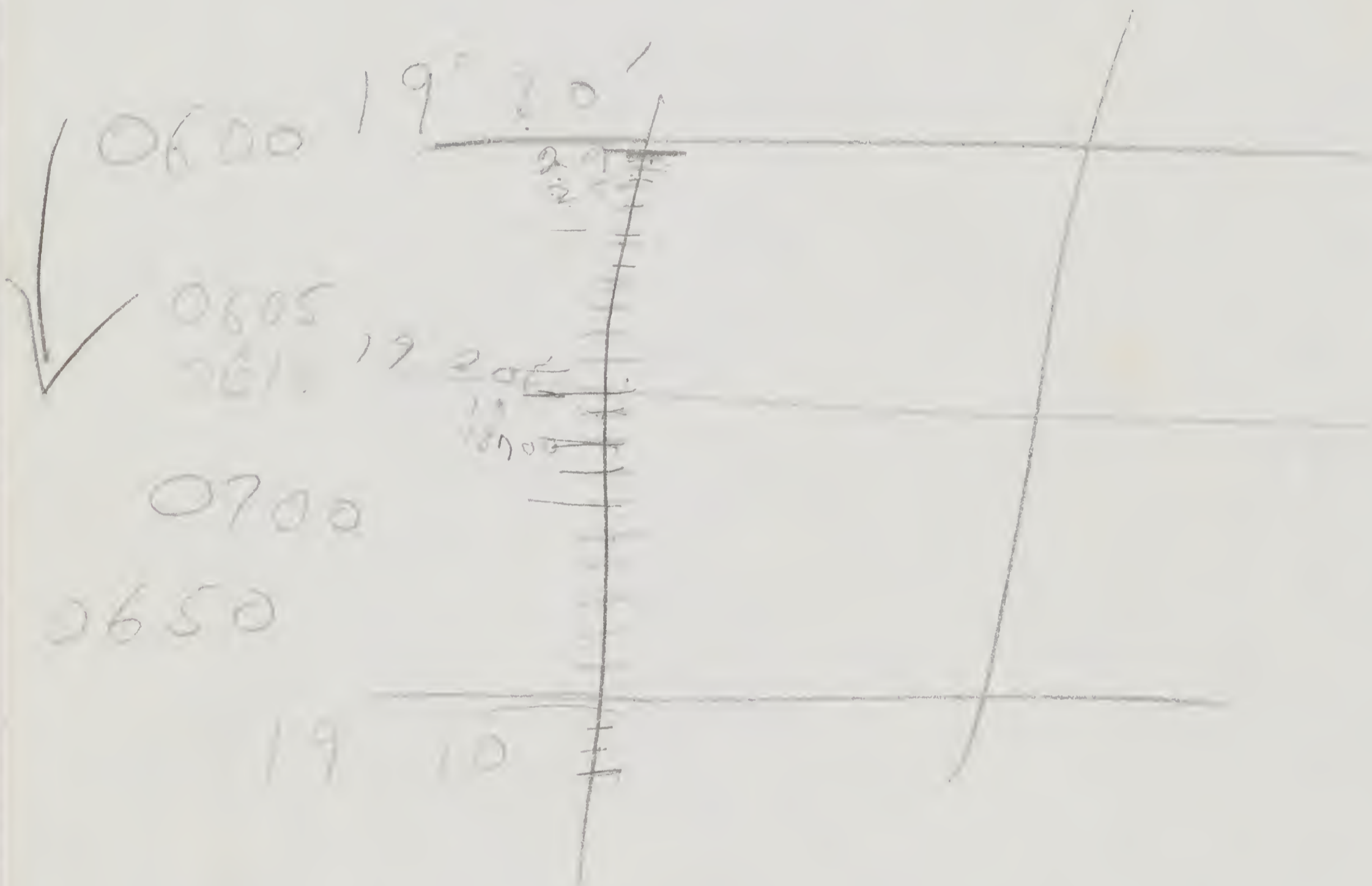


DATE 13 July 1964  
Pg. # 2

time	species	#	dir.	hgt.	remarks	loc.
1742	Wedgetail	2	SE		light	
BWP 1750	Bonin Is P.	1	S			
3 1755	Sooty Tern	250 ±50			feeding flock	
	Noddy Tern	75 ±25				
	Wedgetail	75 ±25				
JFP	Dark rumped P.	3+				
	Redfooted Booby	1				
4 1800	Sooty Tern	75 ±25			feeding flock	
	Fairy Tern	1				
	Wedgetail	2+				
5 1805	Sooty Tern	250 ±50			feeding flock	
	Wedgetail	75 ±25				
1815	Bulwer's P.	2	NE			
	Sooty Tern	1				
1817	Bulwer's P.	2	NE			
1820	Bulwer's P.	2	NE			
1825	Bulwers P	4	A/E		Area affected by 2 tides converging - small chop	
6 1826	Sooty Tern	35			feeding travelling	
1827	Bulwers P.	3	NE			
1830	Wedgetail	1	NE		light	
	Bulwers P	2	NE			
1831	Bulwers P	1	NE			
1832	Bulwers P	3	NE			
1836	Bulwers P	1	NE			
1838	Bulwers P	2	NE			
1840	Wedgetail	1				
1841	Bulwers P	3	NE			
1843	Bulwers P	2	NE			
1852	Bulwers P	1	NE			
1909	Wedgetail	1	NE		Light	
1916	Sooty Tern	1	W			
1920	Wedgetail S	1	⊙		Light	
1925	End of observations					

All Bulwers heading toward Lanai

1 200





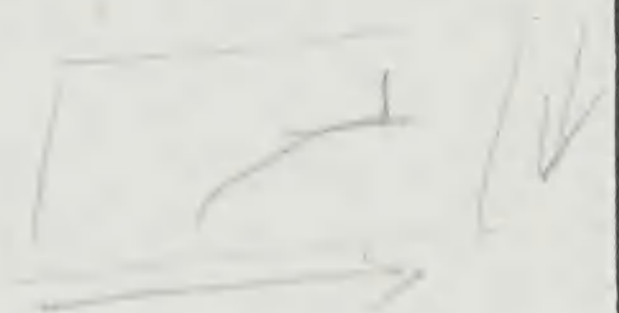
DATE 14 July 64  
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0548	begin observations					
0555	Sooty Tern	2	↕			
	Wedgetail	1	↕		light	
	Newell's S.	1				
0605	Wedgetail	3	S			
0620	Sooty Tern	1	S			
0635	Bulwer's P.	1	N			
0640	Newell's S	1	E			
0650	Bulwer's P.	1	S			
0654	Bulwer's P	1	S			
0700	Wedgetail	1	S		light	
0703	Bulwers P	1	W			
0704	Sooty Tern	4	NW			
0706	Wedgetail	1	NE		light	
0715	Tropicbird sp	1	⊙			
0717	Sooty Tern	3	S			
0718	Bulwer's P.	1	SW			
0719	Wedgetail	1	S		light	
0730	Frigate	2	N			
JFP BWP 0736	Dark-rumped P	1	SW			
	Bonin Is P	1				
JFP 0750	Sooty Tern	8				
	Dark-rumped P	2			feeding flock	
	Wedgetail	1				
BWP 0801	Bulwers P	1	SE			
0815	Wedgetail	1	SE		dark.	
0817	Wedgetail	1	S		Light	
0819	Wedgetail	1	SW		Light	
0837	Wedgetail	1	SW		Light	
0851	Bulwers P	1	SW			
0939	Wedgetails.	1	N		light	
0954	Sooty Tern	1	N			
JFP BWP 1030	Dark-rumped P	1	N			
	Bonin Is P	1	N			



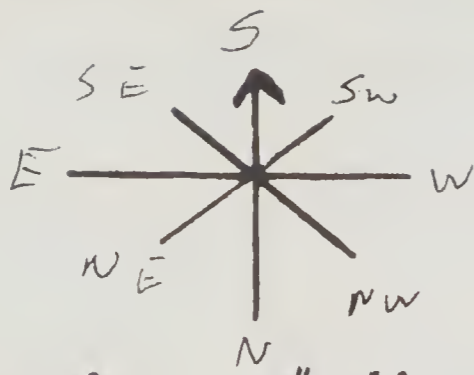
DATE 14 July 64  
Pg. # 2

	time	species	#	dir.	hgt.	remarks	loc.
JFP	1038	Dark-rumped P	1	W			
		Bulwers P	1	W			
WLP	1050	Bonin Is. P.	1	W		new plumage	
JFP	1115	Dark-rumped P	1	SE			
	1215	Wedgetail	30±5	⊙		28 <del>dark</del> light, 2 dark } Feeding flock	
		Bonin Is. P.	50	⊙			
BWP JFP		Dark-rumped P	2				
		Fairy Tern	2				
		Sooty Tern	50±5				
BWP	1239	Bonin Is. P.	1	W			
	1240	Wedgetail	1				
	1256	Bulwers' P.	1	N			
JFP	1300	Dark-rumped P.	1	W		seen by watch	
	1305	Sooty Tern	6			travelling	
JFP	1306	Dark-rumped P	1	SW			
		Wedgetail	1	SW			
JFP	1309	Dark-rumped	1	SW		light new plumage - light grey	
		Wedgetail	1	SW			
JFP	1315	Dark-rumped	1	SE		new plumage - light grey	
	1314	Wedgetail	1	S			
	1320	Wedgetail	1	S			
		shear/petrel	1	S			
JFP	1328	Dark-rumped	2			light sitting on water	
		Wedgetail	1				
	1345	Sooty Tern	2				
JFP	1350	Dark-rumped	1			seen by watch	
		Wedgetail	1				
	1406	Bulwers P	1	S			
BWP	1414	Bonin Is P	1	W			
	1426	Wedgetail	1	W		Light	
	1440	shear Petrel	1	S			
		Wedgetail	2	S		Light	
JFP		Dark-rumped P	1	S		light grey	
JFP	1445	Dark-rumped P	1	SE		light grey	
	1450	Wedgetail	1	W		light	



1036.4  
36



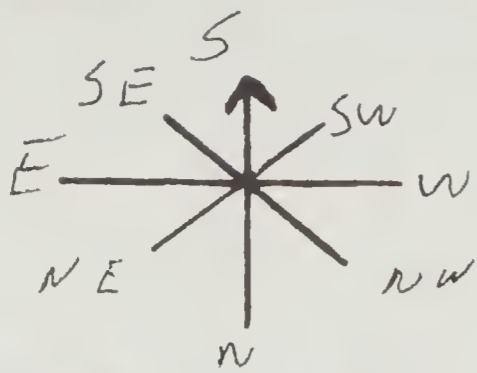


DATE 14 July, 1964  
Pg. # 3

time species # dir. hgt. remarks loc.

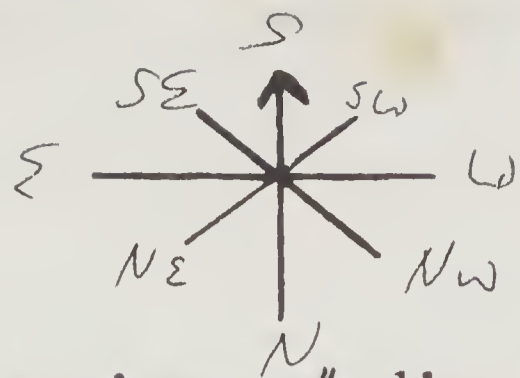
1455	Sooty Tern	6	W		Traveling	
1459	Wedgetail	1	W		Light	
1536	Bonin Is P.	1	S		new plumage	
1540	Dark Rumped P.	1	S			
1546	Sooty Tern	2	NW			
1554	Wedgetail	1	N		Light	
1558	Shear/petrel	1	W		seen by watch	
1720	Bonin Is P.	1	W			
1739	Bonin Is P.	1	S			
1755	Dark-rumped P.	1	NW			
	Bulwers P.	1				
1920	End observations					

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56  
14  
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DATE 15 July 64  
Pg. # 1

	time	species	#	dir.	hgt.	remarks	loc.
	0550	Begin observations					
JEP	0630	Dark R. P.	2	W			
	0710	Sooty Terns	12	W			
		Wedgetails	6±2			Bright color light grey on back } Feeding DRA or Bonin Is P.	
		Dark R. P.	5				
		<del>Shear</del> petrel sp	10±				
	0725	Bonin Is P	1	SW			
JEP	0730	Dark rumped P	1	SW		Darker grey on back.	
	0755	Petrel sp	3+	SW		at considerable distance	
2	0815	Petrel sp	10±3	☰		scattered flock	
	0825	Bonin Is P	1	S			
	0831	White-necked P	1	NW			
3	0837	Sooty Tern	25+	☉		feeding flock almost all petrels	
		Petrel sp	60+				
	0855	Dark-rumped P	1				
		Petrel sp	2				
JEP	0856	Dark-rumped P	1	SE		molting	
	0915	Shear/petrel	3	NE			
JEP	0925	Bonin Is P	1	☉			
	0926	Petrel sp	1	N			
	0931	Petrel sp	1	SE			
JEP	0933	Dark rumped P	1	SW		Dark grey on back	
	0940	Shear-Petrel	1	SE			
JEP	0946	Dark rumped P	1	SW			
JEP	0950	Dark rumped P	1	SE			
JEP	1024	Bonin Is P	1	W			
JEP	1045	Dark rumped P	1	SE		Sitting on water - very dark on top	
JEP	1052	White-necked P	1	SE		Sitting on water	
	1104	Petrel sp	1	SW			
	1108	shear/petrel	1			seen by capt.	
JEP	1226	Dark R. P.	1	NW		dark on back.	
JEP	1305	Dark R. P.	1	NW		" " "	
JEP	1311	Dark R. P.	1	SE		" " "	
JEP	1317	Dark R. P.	1	SW		Brownish on back.	
JEP	1325	Dark R. P.	1	NW			
JEP	1404	White-necked P	2	E		molting, 1 sitting on water	
JEP	1415	shear/petrel	1	☐			



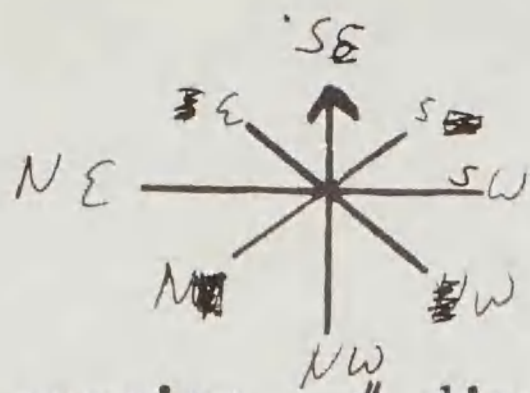
DATE 15 July 64  
Pg. # 2

	time	species	#	dir.	hgt.	remarks	loc.	
JFP	1426	Dark-rumped P.	1	⊙		molting		
R.H.	1432	White-necked P.	1			sitting in water, molting		
JFP	1437	Dark-rumped P.	1			molting		
		Wedgetail	1			dark, molting, sitting on water		
JFP	1440	Dark-rumped P.	2			molting		
	1442	Wedgetail	1			dark		
	1504	Wedgetail	2			dark, molting		
JFP	1516	Dark-rumped P.	1	NW		molting		
	1518	Wedgetail	2			sitting on water, dark, molting		
	1528	Wedgetail S.	4	S				
11	1538	Wedgetail	5			sitting in water, molting		
JFP	1626	Dark-rumped P.	1	S				
BWB	1710	Bonin Is. P.	1	NW				
	1730	Wedgetail	3	↖		dark		
	1731	Fairy Tern	1	E				
	1910	end observations						

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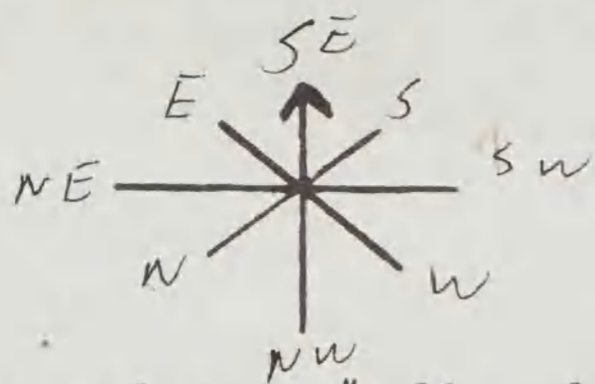
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DATE 16 July 64  
Pg. # 1

	time	species	#	dir.	hgt.	remarks	loc.
	0610	begin observations					
BWP	0650	Bonin Is P	1	NE		finished molting - very thin dark border around underwing, no hash mark	
BWP	0722	Bonin Is P	1	E		maybe leucosterna	
	0735	petrel sp.	1	S		sitting on water - hash mark + border Pan molting	
JFP	0745	Dark-rumped P	1			seen by watch	
BWP	0755	Bonin Is P	1	W			
	0821	Shear-Petrel	1	SW		Seen by Capt.	
P. of	0831	White-necked P	1	W			
	0906	Petrel sp	1	SW			
JFP	0924	Dark-rumped P	1	SW			
JFP	1010	Dark-rumped P	1	NW			
	1053	Newell's S.	1	NE			
	1130	Sooty Tern	2	NE			
JFP	1132	Dark-rumped P	1	NE			
	1135	<del>Petrel sp</del> ?	1	SW		Underwings entirely dark - size of DRP - Flew like DRP.	
BWP	1146	Bonin Is P	1	SW			
JFP		Dark-rumped P	1	SW			
SFP	1147	Dark-rumped P	1	E			
JFP	1153	Dark-rumped P	1	E			
BWP	1230	Bonin Is P.	1				
P. of		White-necked P.	1	N		molting	
	1229	Fairy Tern	1	⊙			
	1240	Wedgetail	1	S		dark	
	1310	Shear/petrel	1			seen by watch	
BWP	1312	Bonin Is P.	1	NE			
	1326	Wedgetail	1	SW		dark	
BWP	1339	Bonin Is P	1	SW			
	1342	Wedgetail	3	SE		dark	
BWP		Bonin Is P	1				
	1346	Sooty Tern	1	SE			
	1358	Wedgetail	2	E		dark	
	1415	Wedgetail	1	SE		dark	
JFP	1430	Dark-rumped P	1	NE			



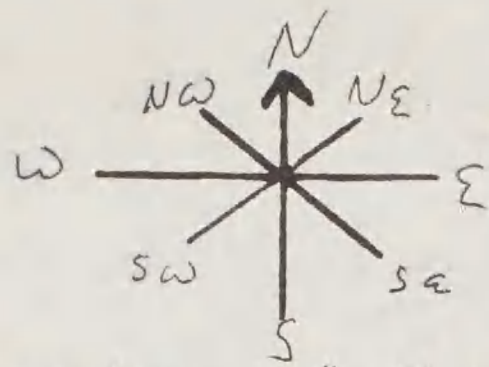
DATE 16 July 64  
Pg. # 2

time species # dir. hgt. remarks loc.

	1447	Wedgetail	1	SE		dark.	
JFP	1505	Dark-rumped P	1	SW			
	1533	Wedgetail	1	NW		dark	
BWP	1542	Bonin Is P	1	SE			
	1603	Wedgetail	1			dark	
JFP		Dark-rumped P	1			seen by watch	
	1610	Wedgetail	2			seen by watch	
	1625	squid 3" long				jumped clear of water by bow of ship	
	1637	Newell's S.	2	SE			
	1645	Sooty Tern	50 ± 10				
		Wedgetail	50 ± 10			dark	
JFP		Dark-rumped P	10 ± 2			shot / dark-rumped but due to misunderstanding	
P. 4		White-necked P.	5			ship didn't stop to pick it up.	
		Petrel/shear X	1			Brown above, white underparts, brown underwing	
						size of Dark-rumped, white headed look	
	1712	Newell's S.	1			shot and downed but revved & flew away attempting	
	1731	Newell's S.	1	NE		recovering	
BWP	1733	Bonin Is P	1				
BWP	1840	Bonin Is	3				
JFP	1845	Dark RP	1				
JFP	1850	Dark AP	1				
	1811	Wedgetail	1	SW		Dark.	
	1900	E not O observations					

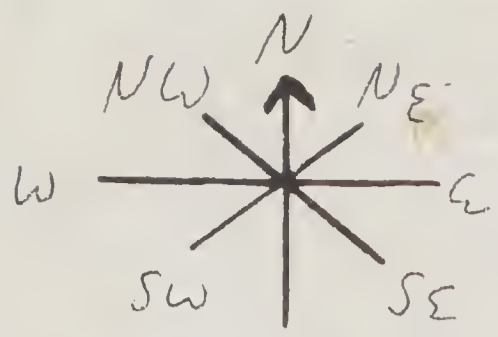
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DATE 17 July 64  
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0550	begin observations					
0630	Wedgetail	1	NE		Dark.	
0700	Shear/Petrel	3			seen by watch	
PWP 0837	White-winged P	1	S			
JFP 0838	Dark-rumped P	1	S			
BWP 0907	Bonin Is P.	1	W			
1013	Wedgetail	1	N		Dark.	
JFP 0915	Dark-rumped P	1			seen by watch	
1230	Shear-Petrel	1	NW		seen by watch	
1250	<del>Shear-Petrel</del> Dark Wedgetail	1	N		Dark	
1315	Wedgetail	1	W		Light	
1439	Wedgetail	1	E		dark	
BWP 1450	Bonin Is P.	1	N			
1456	Red-tailed TB.	1	⊙		very immature - no tail at all - much vermiculation on back, bill yellowish black	
JFP 1713	Dark-rumped P	1	NW			
1840	Petrel/Shear	1	S			
1900	end observations					

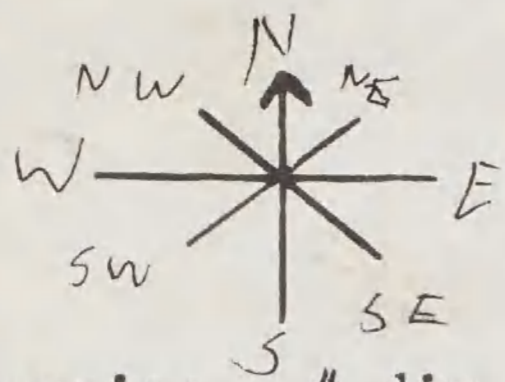


DATE 18 July 64  
Pg. # 1

	time	species	#	dir.	hgt.	remarks	loc.
	0610	begin observations					
TFR	0735	Dark-rumped P	1	N			
TFR	0746	Dark-rumped P	1	NE		seen by watch	
TFR	0908	Dark-rumped P	1	SE			
	0930	Red T. Tropicbird	1	E		Tail missing	
	0945	Sooty Terns	10±10		70		
		Wedgetails	40±20			25 or 30 dark	
JFR		Dark R. Petrels	20±5				
BLR		Bonin Is P	5±				
	1030	Bonin Is P.	1	L			
	1046	Wedgetail	2			dark	
TFR		Dark-rumped P	1	NW		heavily molting	
	1050	Red-tailed tropicb.	1	⊙			
BLR	1055	Bonin Is P.	1	NW			
BLR	1114	Bonin Is P	1			sitting in water	
TFR	1136	Dark-rumped	1			sitting on water	
TFR	1137	Dark-rumped	1			sitting on water	
BLR	1235	Bonin Is P	1	E			
TFR	1237	Dark-rumped	2			sitting on water	
	1250	Petrel sp.	1	NE			
TFR	1255	Dark R. Petrel	1	NW			
	1420	Petrel/Shear	3+			circling + high arcing	
TFR	1454	Dark-rumped	1	NW			
TFR	1456	Dark-rumped	1	N			
TFR	1503	Dark-rumped	3	E			
BLR		Bonin Is P	1	NE			
TFR	1511	Dark-rumped	2	E			
TFR	1520	Dark-rumped	1	NW			
TFR	1535	Sooty Terns	10±12	NW			
		Dark R.P.	30±5				
		Wedgetails	15±5			feeding	
TFR	1540	Dark R.P.	2	NE			
	1544	R.T. Tropicbird	1	SE			
TFR	1548	Dark R.P.	2	E			
BLR	1552	Bonin Is P	2	NE			

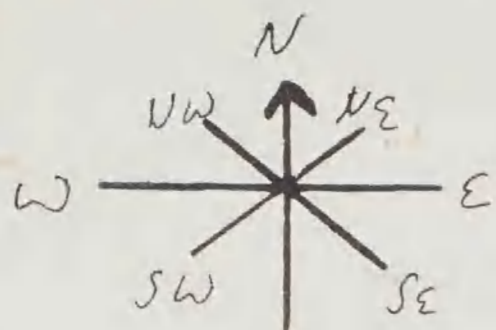
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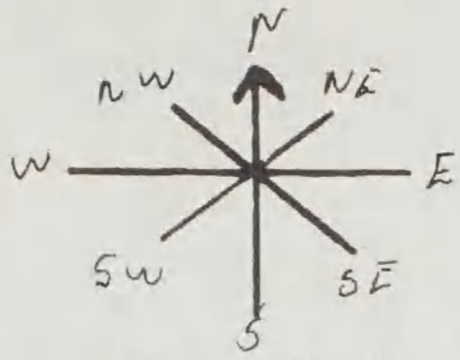
DATE 18 July 64  
Pg. # 280

	time	species	#	dir.	hgt.	remarks	loc.
JFP	1650	Dark-rumped P	1	SW			
JFP	1653	Dark-rumped P	2	NE			
BWP	1655	Bonin P	1	NW			
JFP	1658	Dark-rumped P	6	NW			
JFP	1701	Dark-rumped P	1	NE		slightly lighter on back.	
JFP	1708	Dark-rumped P	1	NE			
JFP BWP	1712	Dark R P Bonin P Wedgetail	10 1 4	N		light feeding	
JFP	1716	Dark R P	3	NW			
JFP	1725	Dark-rumped	1	N			
<del>JFP</del>	<del>1750</del>						
JFP	1745	Dark-rumped	20			flour feeding. feed 8 times or 10 at 50ft	
JFP	1750	Dark-rumped	3	N		to 40 yds, saw feathers fly on 3 birds, twice on one	
	1751	Wedgetail	1	N		but none dropped immediately, so we didn't slow	
	1800	Wedgetail	2	N		light	at least 2 killed, may be
	1810	Sooty Tern	1	E			down
	1825	Shear-Petrel	1	E			up to 5 - with automatic
JFP	1826	Dark-rumped	1	N			several could have been dropped
JFP	1827	Dark-rumped	1			sitting	
	1900	end observations					



DATE 19 July 64  
Pg. # 1

	time	species	#	dir.	hgt.	remarks	loc.
	0533	begin observations					
P. B.	0621	Wedgetail	1	NW		Dark.	
		whitemech P	1	NW			
	0625	Petrel sp	2	SE			
JFP	0629	Dark rumped P	2	W			
	0630	Wedgetail	1	W		Light	
	0728	Shear-Petrel	1	SE			
	0821	Wedge tail	1	SE		light	
JFP	0855	Dark rumped	2	N			
		Wedge tail	2	N		1 light, 1 dark	
	0856	Tropicbird sp	1	⊙			
JFP	0913	Dark rumped P	1	S		not tiny	
	0915	Shear/Petrel	2	W			
	0916	Shorebird	1	⊙		all brown, lighter below, with fairly long, straight bill. No white on tail, no barring - size of Golden Plover.	
JFP	0917	Dark rumped P	1	S		Finest 5 times, hit at least once	
	0915	R.T. Tropicbird	1				
JFP	0930	D.R. Petrel	1	NW			
JFP	0933	PR Petrel	1	NE			
BWP	0935	Bonin Is P	1	W			
BWP	0944	Bonin Is P	1	NW			
BWP	0945	Bonin Is P	1	NW			
BWP	0955	Bonin Is P	1	NW			
	1005	Sooty Terns	25±	10			
JFP		Dark R. Petrels	25±	10		20 dark feeding	
		Wedgetail	40±	10			
BWP		Bonin Is P	10±	5			
		Fairy Tern	2				
		Frigate	1				
	1056	Sooty Tern	1	SW			
JFP	1044	Dark R. Petrel	1	NW			
	1045	Shear-Petrel	2	S			

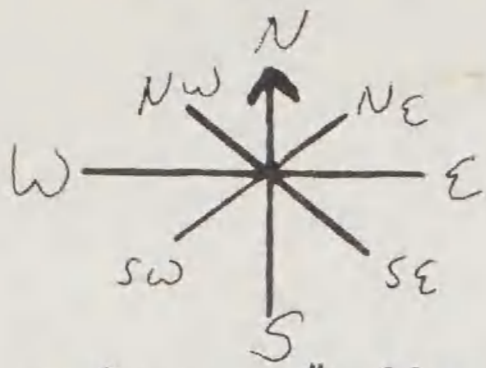


DATE 19 July 64  
Pg. # 2

	time	species	#	dir.	hgt.	remarks	loc.
2	1055	Sooty Terns	60 ± 20	NW		Feeding	
		Shear-Petrel	40 ± 10				
	1102	Petrel sp	1	NW		seen by watch + capt.	
	1104	Wedgetail S	3	NE		Light	
BWP	1132	Bonin Is P.	3			sitting on water	
JFP	1133	Dark Rump P.	1	N		molting	
	1136	Sooty Tern	1	S	75ft		
BWP	1135	Bonin Is P.	1	E		sitting on water	
BWP	1147	Bonin Is P.	1				
BWP	1158	Bonin Is P.	2			seen by watch	
BWP	1202	Bonin Is P.	1			sitting on water	
3	1215	Sooty Tern	25 ± 2				
		Wedge tail	5 ± 2			2 dark - 3 light feeding	
BWP	1239	Bonin Is P.	1	NW		sitting on water	
JFP	1251	Dark R. Petrel	1	W			
JFD	1259	Dark R. Petrel	1	NW			
	1439	White Tailed Tropicbird	1	⊙			
	1450	Wedgetail S	1	⊙		Light	
4	1505	Sooty Tern	25 ± 2				
		Wedgetail	14 ± 2			2/ dark feeding flock most shears, sitting	
		Newell's S.	1			in water	
	1528	Newell's S	2	NW			
	1530	Shear/petrel	1	NW			
	1531	White-tailed Tropicbird	1	N			
	1650	Wedgetail	1	S		Dark	
	1712	Wedgetail	1	W		Light	
BWP	1814	Bonin Is P.	1	W			
	1820	Wedgetail S.	1	E		dark	
	1847	Sooty Tern	2	E		1 immature	
	1908	end observation					

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DATE 20 July 64  
Pg. # 1

time species # dir. hgt. remarks loc.

0545 begin observations

0550 Red-tailed Tropicbird 1 @

0605 Wedgetail 1 light - seen by watch

0615 Wedgetail 2

0616 Petrel sp 1 S

0620 Petrel sp 1 S

0645 Wedgetail 1 SW light

0656 Sooty Tern 1 SW

0701 Sooty Tern 1 SW

0705 Sooty Tern 1 SW

0732 Sooty Tern 125 ± 25

Wedgetail 45 ± 10

Frigate 2

feeding flock 1 dark

0743 Shear/petrel? 1

Sooty Tern 2

brown, 2 light patches under wings, rest of body brown but not too dark - not wedgetail - seen by watch

0824 W.T. Tropicbird 1 SE

0835 Bulwers P 1 SE

BWP 0902 Bonin's P 1 NW

0916 Petrel sp 1 W

0920 Wedgetail 1 NW Dark

0932 Sooty Tern 75 ± 10

Wedgetail 40 ± 10

Dark rumped P 1+

feeding molting

BWP 0938 Bonin Is P. 1 NW

0950 Shear-petrel 1 S

seen by watch

0955 shear-petrel 1

seen by watch

1010 Sooty Tern 85 ± 5 150 ft

Wedgetail 25 ± 10

feeding

1049 Fairy Tern 1 NE

1142 Sooty Terns 8 NE

Wedgetail 5

Feeding, light Wedgetails

1151 Sooty Terns 25 ± 5 S

Wedgetails 10

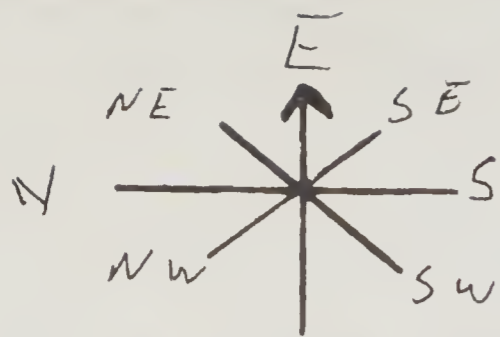
Petrel sp 8

2 or 3 dark feeding

Dark rumped or Bonin's Is Petrels

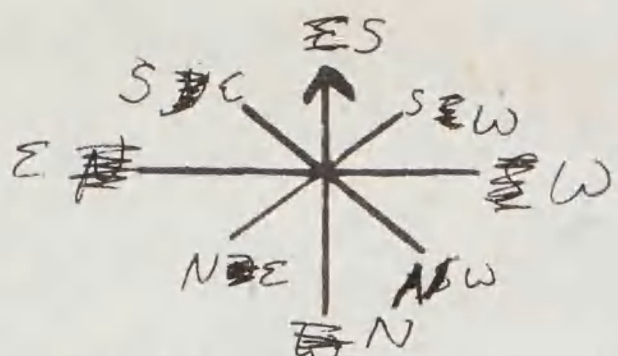


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DATE 20 July 64  
Pg. # 2

time	species	#	dir.	hgt.	remarks	loc.
1202	Wedgetail	1	E		Light	
1400	Sooty Tern	250 ± 50			feeding flock	
	Shear/petrel	75 ± 25				
	Frigate	1				
1445	Shear-Petrel	1	S			
1515	Shear-Petrel	1	N			
1535	Wedgetail	1	SE		light	
1548	Shear/petrel	1	S			
1550	Sooty Tern	85 ± 5			feeding	
	Fairy Tern	4				
	Wedgetail	10 ± 5				
1635	Bonin I.S.P.	1	S			
1710	Wedgetail	3	NW		2 light 1 Dark	
1910	End Observations					



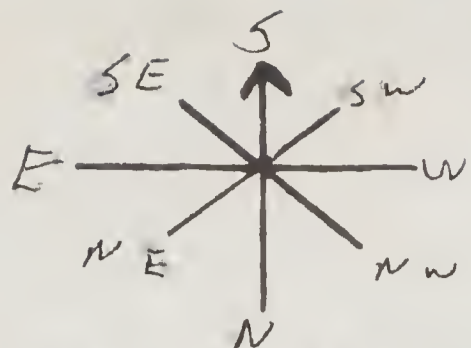
DATE 21 July 64  
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0538	begin observations					
0545	Petrel-Shear	1	SE			
JFP 0617	Dark-rumped P	1	SW			
0621	Great Frigate	1	NW			
0714	Shear-Petrel	1	NW			
0757	Sooty Tern	1	N		immature - changing	
0813	Petrel sp	1	N			
JFP 0842	Dark-rumped P	1	SE		molting	
0910	Sooty Tern	2				
1	Wedgetail	4				
JFP BWP	Dark-rumped	3			travelling	
	Brown Is P.	2				
	Bulwers P	1				
0920	Sooty Tern	25	E	2		
2	Shear/petrel	5	E	2	dispersing	
JFP BWP	Dark-rump P	1	E			
	Brown Is P	1	E			
0930	Sooty Tern	25	E	5		
3	Shear/petrel	5	E	2	travelling	
0940	Wedgetail	1	SW		Light	
Pex 1001	White-rumped P	2	SW			
	<del>Wedgetail</del>	<del>1</del>	<del>SW</del>			
1009	Shear-Petrel	1	W			
1625	Bulwers P	1	SW			
JFP 1635	Dark-rumped P	1	SE			
1173	Christmas Is S.?	1	E		sitting on water - slightly smaller than Wedgetail, all dark	
1203	Sooty Tern	2	NW		1 immature	
1229	Bulwers P.	1	N			
1239	Petrel sp.	1	SW			

20  
16  
135  
15  
20  

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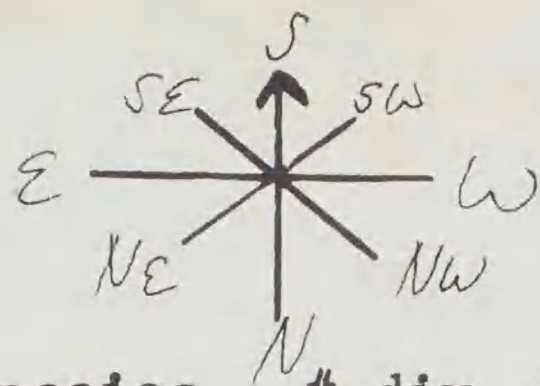
206



DATE 21 July 64  
Pg. # 2

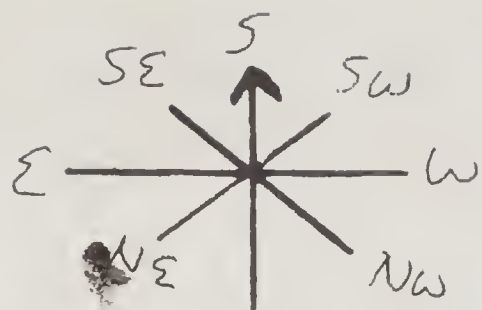
time species # dir. hgt. remarks loc.

1310	<del>Petrel sp?</del> Shear/petrel X	1	SW		All dark under wings except for narrow (very narrow) white strip in middle of wing. No dark breast band, no black on head or back that could be seen. Flw like a cross between Bonin + Panda D.R. Petrel. About the size of a D.R.P. or a little smaller. Body was white.	
1330	Wedgetail	2	SW			
1335	Dark R.P. Wedgetail	2 1	SE		1 collected by Husted # 0509 1.05 lbs. Dark.	
1342	Sooty Terns	2	S			
1410	D.R. Petrel	1	SE			
1450	Sooty Tern Wedgetail <del>Shear/petrel</del> Dark-rumped	75 ± 10 <del>5</del> 5+			feeding floc - rising - formed & dissolved several times during hydro station	
1451	Dark-rumped Frigate bird Bonin Is P	1 1 1	E		headed toward floc with feeding flock	
1630	<del>Petrel sp?</del> Bonin Is P.	1	S		Very small, white underneath, flew like Bonin Is., may have been a small Bonin Is.	
1635	Wedgetail D.R. Petrel Sooty Terns	3 2 3	SW		Dark 1, light 2 travelling	
1640	Bonin Is P	1	SE		Sitting on water	
1644	B.T. Tropicbird	1	SE			
1735	Red-tailed Tropic	1			sitting on water	
1841	Dark-rumped P	2	NW			
1844	Bonin Is P	1	W			
1850	Shear/petrel	1	W		seen by watch	
1900	Shear/petrel	1	S			
1910	end observations					



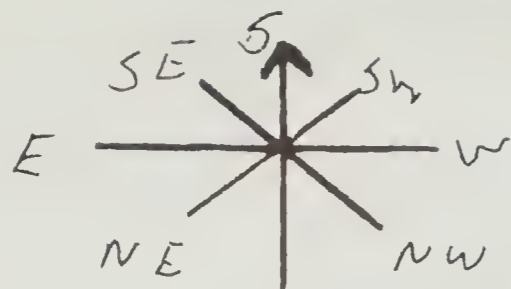
DATE 22 July 64  
Pg. # 1

	time	species	#	dir.	hgt.	remarks	loc.	
	0545	begin observations						
JFP	0610	Dark rumped P	1	SE				
Cap	0614	White-necked	2	SE				
	0625	Petrel sp.	1			sitting on water		
	0640	Booby sp	1	N	75ft	seen in distance - described by engineer as big white bird with long neck		
JFP	0715	Dark rumped P	2	SE				
JFP	0720	Dark rumped P	2	S		1 molting slightly, 1 pretty dark		
JFP	0730	Dark rumped P	2	E				
		Newell's S.	1					
	0736	Red-tailed Tropicb.	1	⊙				
JFP	0758	Dark rumped P.	1	E		molting		
JFP	0810	Dark rumped P	1	E				
BNP		Bonin's P.	1	SE				
	0815	Wedgetail	2	E		Feeding		
JFP		Dark rumped P	1					
BNP		Bonin's P.	1					
	0820	Newell's S	1	E		Seen by capt, right in sun		
JFP	0824	Dark R.P	3	W		Feeding		
		Petrel sp	2					
JFP	0830	Dark rumped P	1	E		Light back.		
JFP	<del>0841</del>	Dark rumped P	1	SE				
JFP	0935	Dark rumped P.	2	E				
JFP	1000	Dark rumped P	1	SW				
JFP	1020	Dark rumped P	1			sat in water		
JFP	1040	Sooty Tern	25	±3		feeding		
		Dark rumped P	6			1 collected by King # 0510		
		Wedgetail	6			light		
	1045	White-necked P	2			1 collected by King # 0511		
		Dark rumped P.	1					



DATE 22 July 64  
Pg. # 2

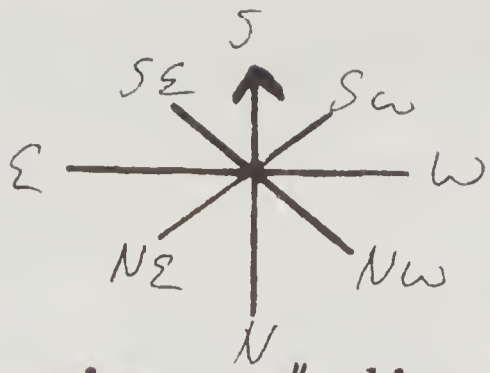
time	species	N	#	dir.	hgt.	remarks	loc.
1105	Petrel sp		3			seen by watch	
1110	Sooty Tern		90 ±10			eight 3 separate groups joined up, each with about 30 sooty Terns - feeding	
	Wedgetail		2				
	Dark-rumped P		6				
	White-necked P		2				
	Fairy Tern ♀		1				
1120	Sooty Tern		25			feeding flocks close together, very close to ship, following Sooty Terns immature changing to adult + molting adult.	
	Dark-rumped		5				
	White-necked		1				
1130	Sooty Tern		20			feeding 2 dark rumps chasing flying fish, flying same direction, South dark almost 1 long flock - Ad present	
	Dark-rumped		6				
	White-necked		2				
	Wedgetail		1				
	Fairy Tern		1				
1135	Dark-rumped		6			most sitting in water - not feeding	
	White-necked		1				
	Wedgetail		1				
1145	Dark R P		1			collected by Husted # 0512	
1148	DR Petrel		1	SE			
1149	w. Tropicbirds		2	E			
1250	DR Petrel		1	W			
1225	Dark-rumped P		1	S			
1227	Wedge tail		1			following ship, high	
1229	Dark-rumped P		1	NE			
1235	Sooty Tern		20 ±10			feeding flock - wing off	
1238	Dark-rumped P		1	W			
1246	Sooty Tern		7	⊙		travelling	
1250	Dark-rumped P		1	SW			
1255	Dark-rumped P		2			sitting	
1300	Dark-rumped P		1			"	
1301	Dark-rumped P		3			"	
1302	Sooty Tern		55 ±7			feeding sitting on water	
	Dark-rumped P		5				
1330	Dark R P		2	S			



DATE 22 July 64  
Pg. # 3

	time	species	#	dir.	hgt.	remarks	loc.
JEP	1344	Dark-rumped P	1	SE			
	1348	Petrel sp.	1	SE		seen by watch	
JEP	1356	Dark-rumped P	1	SE			
JEP	1400	Dark-rumped P.	5	SE		travelling	
JEP		White-necked P	2	S			
JEP	1441	Dark-rumped P	1	SE			
	1450	Sooty Tern	20 ± 2			feeding	
		<del>Dark-rumped P</del>	4				
JEP	<del>1500</del>	Dark-rumped	7			↑ 1 collected by King #0513 same as above flock	
JEP		White-necked P	2				
JEP	1502	Dark-rumped	3			sitting on water	
JEP	1506	Dark-rumped	1	S			
JEP	1509	Dark-rumped P	1			light	
JEP		Wedgetail	1	N			
JEP	1534	DRP	1	W			
JEP	1535	DRP	1	S		Dark	
JEP		Wedgetail	1				
JEP	1538	DRP	2	SE			
JEP	1539	Bonin's P	1	NE			
JEP	1555	DRP	1	S		collected by <u>Husted</u> #0514	
JEP	1602	Dark-rumped P	1	S			
	1610	Fairy Tern	1	SE		seen by watch	
	1614	Petrel sp	4	SW			
JEP	1628	Sooty Terns	6	SE		Feeding	
JEP		DRP	4				
JEP		Wedgetails	2				
JEP	1650	Dark-rumped P.	2			1 shot by Husted but, although pointed out by watch, first mate <del>to</del> made 1/4 turn, said he couldn't see bird and resumed course. Gave no cogent reason for not picking up bird.	





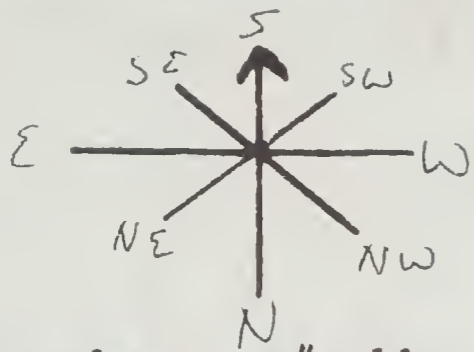
DATE 22 July 64  
Pg.# 4

time	species	#	dir.	hgt.	remarks	loc.
JPR 1754	Dark-rumped P.	1	S			
1836	<del>Tropicbird</del> Fairy Tern	2	N			
1900	end observations					

14  
17  
268  
103  
14  
11  
427

500  
200  
600  
800  
400  
1200

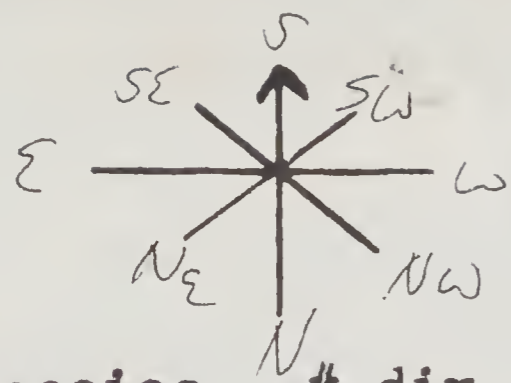
17  
278  
72  
427



DATE 23 July 64  
Pg. # 1

time species # dir. hgt. remarks loc.

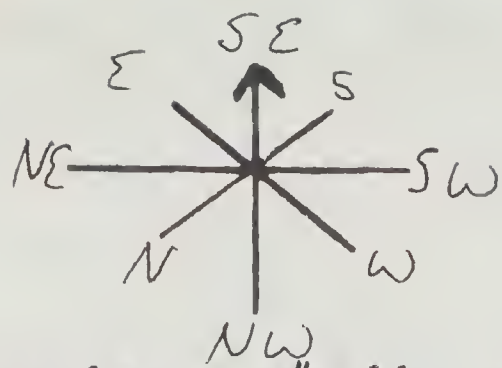
time	species	#	dir.	hgt.	remarks	loc.
0538	begins observations					
0625	Bonin Is P	1	SE			
0638	Sooty Tern	1	E			
0652	Petrel sp	3	SW			
0701	Wedgetail	1	SW		<del>Light</del> Dark	
0708	Sooty Tern	2	SW			
0717	Dark-rumped P	1	SW			
0729	Dark-rumped P	1	S			
0731	Petrel sp	1	SW			
0815	Dark-rumped P	1	N			
0820	Dark-rumped P	3			sitting on water	
0823	Dark-rumped P	3	S			
0827	Dark-rumped P	2	S			
0834	Dark-rumped P	1	S		sitting	
0837	Dark-rumped P	2	SW			
0842	Dark-rumped P	5			sitting	
0855	Dark-rumped P	1			sitting	
0858	<del>Dark-rumped P</del> White-necked P	1	SE			
0916	Dark-rumped P	1	E		molting	
	Bonin Is P	1	W			
0925	Dark-rumped P	3			sitting in proximity to large log. Mahimahi under log	
0948	Dark R P	1	SW		sitting on water	
1020	Dark-rumped P	1	W			
1115	Bonin Is P	1	N			
1130	Sooty Tern	30 ± 1			feeding	
	Dark-rumped P	3+			dark	
	Wedgetail	1+				
1131	Sooty Tern	50 ± 25			wing out - feeding - probably shear/petrel too but too far	
1325	Bonin Is. P	1	SE			
1420	Kermadec's Storm Petrel	1	W		very erratic flight, fairly stiff wings, covered wide	
1445	Dark-rumped P?	1	NW		are on flap	
1506	Dark-rumped P	1	SE		very dark back	



DATE 23 July 64  
Pg. # 2

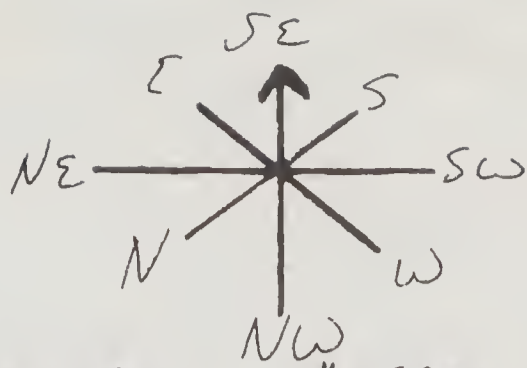
time	species	#	dir.	hgt.	remarks	loc.
1715	Petrel sp	1	SW			
JEP 1728	Dark Rumped P	1	S			
1734	Wedgetail	1	SE		dark.	
1750	Petrel sp	1	SW			
1800	Petrel sp	1	SW			
JEP 1802	Dark rumped P	1	NE			
JEP 1820	Dark rumped	1	N			
JEP 1840	Dark rumped P	1	SE			
1842	Wedgetail	4	SW		dark	
1850	and observations					

20  
83  
38  
108



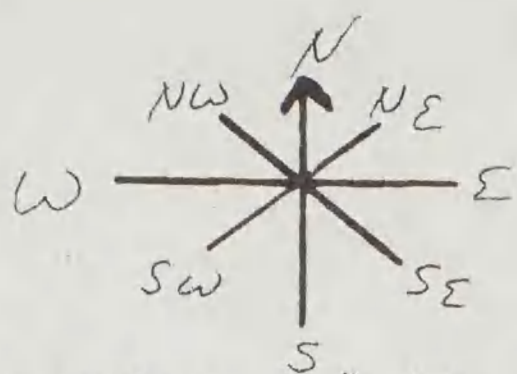
DATE 24 July 64  
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0400	feeding flock	30			species undetermined, seen by 2nd mate in the light of full moon, working	
0610	begin observations					
0616	Bonin Is P	1	E			
0640	Wedgetail	1	SW		dark	
0648	Sooty Tern	3			feeding	
	Dark-rumped P	7			dark	
	Wedgetail	3				
0654	Dark-rumped P	1	SE			
0714	Wedgetail	1			dark, seen by watch	
0728	shear/petrel	3			seen by watch	
0752	Dark-rumped P	1	W			
0811	Shear-Petrel	1	NE		Seen by watch	
0845	DR Petrel	1	S			
0854	Bonin Is P	1	SE			
0913	Dark-rumped P	1	S			
0926	Wedgetail	1	W		Dark.	
1005	Bonin Is P	1	NW			
1147	Wedgetail	1	E		Dark.	
1201	Sooty Tern	1	NE			
1209	Dark-rumped P	1	SW			
1318	Wedgetail	1	SW		dark	
1321	Wedgetail	1	NW		dark	
1332	Wedgetail	1	NW		dark	
1350	Wedgetail	1	NW		dark	
1415	Petrel sp	1	NW			
1418	Wedgetail	1	NE		Dark	
1425	Dark-rumped P	1	SE			
1441	Wedgetail	1	E		Dark.	
1444	Bonin Is P	1	NE			
1513	Dark-rumped P	1	NE			
1607	Wedgetail	1	NW		dark	
1610	Wedgetail	1	W		dark	



DATE 24 July 64  
Pg. # 2

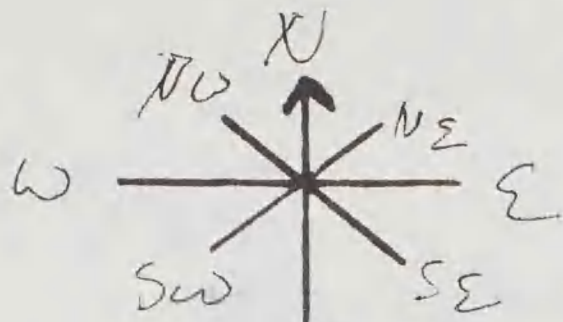
time	species	#	dir.	hgt.	remarks	loc.
1610	Sooty Tern	1	NW			
1630	Bonin Isp	1			seen by watch	
1655	Bonin Isp	1	E		in heavy rain squall	
1712	Bonin Isp	1	S		new plumage	
1715	Wedgetail	1	E		Dark.	
1725	W.N. Petrel	1	SE			
1806	Bonin Isp	2	E			
	Harcourt's Storm P	1	N		stiff winged	
1808	Bonin Isp	1	SW			
1811	Sooty Tern	3				
	Wedgetail	1			dark	
	Dark-winged P	1			dispersing flock	
1844	End observations					



DATE 25 July 64  
Pg. # 1

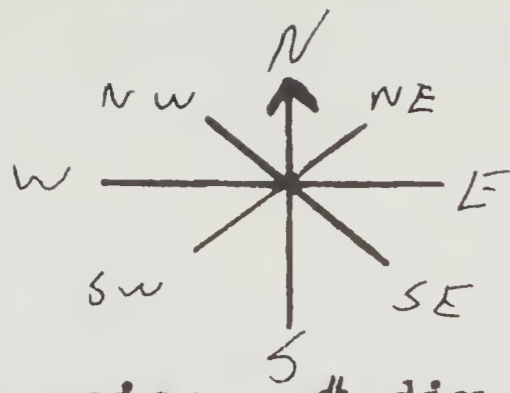
	time	species	#	dir.	hgt.	remarks	loc.
	0540	begin observations					
JFP	0625	Dark-rumped P	1	NE			
	0636	Wedgetail	1	SE		Dark.	
BWP	0656	Bonin's P	1	E			
	0658	Shear-Petrel	1	NE			
	0701	Wedgetail	1	N		Dark.	
	0800	Shear/Petrel	1	S			
JFP	0801	Dark-rumped P	1	SW		dark	
		Wedgetail	1	SW			
P. ex	0823	White-necked	1	SW			
JFP		Dark-rumped	1	SW			
	0845	Wedgetail	2			dark	
P. ex		White-necked P	1			seen by watch	
		Shear-petrel	1			Newell's or Bonin's	
JFP	0858	Dark-rumped P	1	E			
JFP	0902	Dark-rumped P	1	SE			
	0904	Wedgetail	3	NE		dark	
BWP	0907	Bonin's P	1	NW			
JFP	0910	Dark-rumped P	1	S			
JFP	0912	Dark-rumped P	2	N			
JFP	1100	Dark-rumped P	1	W			
JFP	1102	Dark-rumped P	1	NE			
JFP	1108	Dark-rumped P	1	NE			
	1115	Wedgetail	1	SW			
JFP	1117	Dark-rumped P	1	S			
	1126	Shear/petrel	1			seen by watch	
JFP	1143	Dark-rumped P	1	NE			
JFP	1147	Dark-rumped P	1			seen by watch	
JFP	1154	Dark-rumped P	1	E			
	1155	Shear petrel	1			seen by watch	
	1205	Shear/petrel	1	N			
	1206	Bulwer's P.	1	N			
BWP	1211	Bonin's P.	1	N			
	1216	sooty Tern	2				
		shear/petrel	1				





DATE 25 July 64  
Pg. # 2

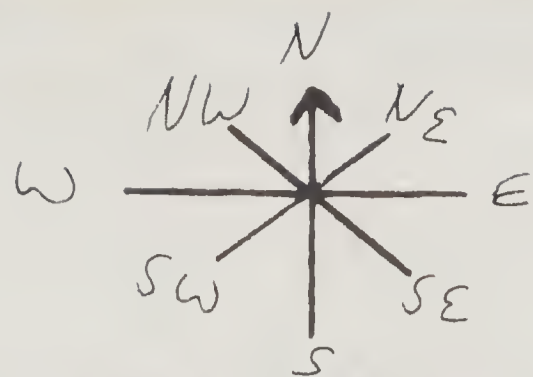
	time	species	#	dir.	hgt.	remarks	loc.
JFP	1219	Dark-rumped	1	S			
JFP	1232	Dark-rumped P	1	NE			
JFP	1237	Dark-rumped P	3	SW			
JFP	1253	Dark-rumped P	2	NW			
		Shear-Petrel	1				
JFP	1304	Dark-rumped P	1	NW			
	1311	Shear-Petrel	1	NE			
	1314	Wedgetail	1	NW		Dark.	
SFP	1315	Dark-rumped P	1	W			
P. ex	1406	White-headed	1	W			
BWP	1410	Bonin Is P	1				
	1345	Wedgetail	3				
JFP		Dark-rumped	4			seen by watch scattered, no flock	
P. ex	1413	Bonin Is P	2	N			
JFP	1416	Dark-rump P.	1	NW			
JFP	1425	Dark-rump P	3	NW			
JFP	1430	Dark-rump P	4	NW			
	1433	Shear/Petrel	1	NW			
BWP	1444	Bonin Is P	1	E		sitting	
SFP	1443	Dark-rump P.	1	NW			
JFP	1500	Dark-rumped P	12	(S)		feeding flock	
	1515	Sooty Tern	8				
JFP		Dark-rumped P	<del>8</del>	±10 65		feeding flock	
		Wedgetail	<del>4</del>	±10 35			
JFP	1535	Dark-rumped P	1	SW			
BWP	1553	Bonin Is P	1	W			
	1554	Wedgetail	1	W		Dark	
	1600	Wedgetail	2	NW		Dark.	
	1604	Shear-Petrel	1	NW			
BWP	1642	Bonin Is P	1	NW			
BWP	1700	Bonin Is P	1	NE			
JFP	1709	Dark-rumped P	1	NE			



DATE 25 July 64  
Pg. # 3

time	species	#	dir.	hgt.	remarks	loc.
JFR 1718	Dark-winged P.	1	NW			
JFR 1727	Red-winged P.	1	SE			
1830	ad obs. within					

4  
51  
10  
10  
118  
11  
204



DATE 26 July 67  
Pg. # 1

time species # dir. hgt. remarks loc.

0542 begin observations

0548 Dark-rumped P 1 W

0554 Newell's S. 1 SW

0609 Wedgetail 1  $\approx$

0658 Dark-rumped P 1 N

0838 Bonin Is P 1 NW

0840 Dark-rumped P 1 W

0905 Shear-Petrel 1 NE

0933 Shear-Petrel 1 NW

0938 Christmas Is S. 1 N

1003 Bonin Is P. 1 SW

1024 Bonin Is P 1 W

1029 Wedgetail 1 S

1043 Dark-rumped P 1 ~~S~~ S

1055 Kermadec Petrel 1 N

1600 Sooty Tern 4  $\odot$

1129 Dark-rumped P 1 NW

1300 Dark-rumped P 1  $\approx$

1325 Dark-rumped P. 2 NW

1354 Dark-rumped P. 1 NE

1606 Bonin Is P 1 NW

1615 Dark-rumped P 1 S

1636 Shear/petrel 1 N

1637 Audubon's Shear? 1 SE

1847 E not observations

1900 Wedgetail 2 N

light

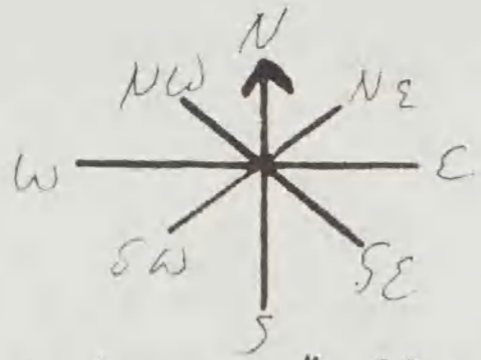
Seen by watch

all dark, typical shearwater flight, stiff wingbeats and glide, slightly smaller than Wedgetail, tendency to sail high above horizon. Came very close. wings held stiff, not cocked like wedgetail.

dark

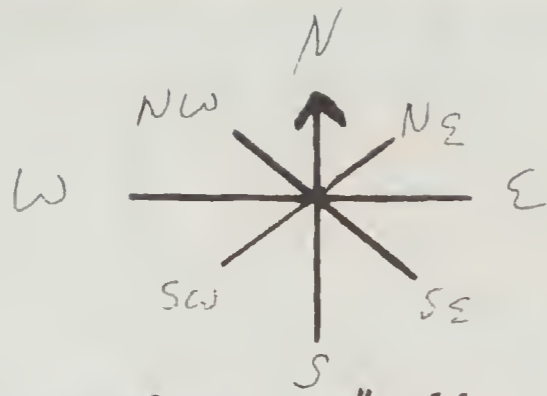
white circular spots seen toward ends of underwings, typical petrel flight, medium-large all brown, chunky. Lighter brown below.

very small shearwater, smaller than Bonin's with thinner, <sup>stiffer</sup> wings, not as chunky, Dark grey brown above, white below, white underwing with thick dark edges. Flew with fast stiff wingbeats, constant flapping



DATE 27 July 64  
Pg. # 1

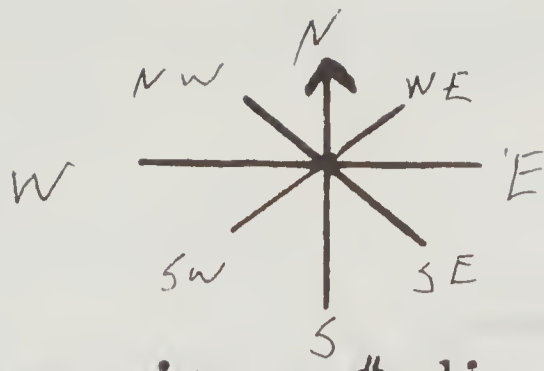
time	species	#	dir.	hgt.	remarks	loc.
0525	begin observations					
JFP 0728	Dark-rumped P	1	NW			
JFP 0750	Dark-rumped P	1	N			
JFP 1035	Dark-rumped P	1	W			
JFP 1115	Dark-rumped P	1	E			
JFP 1249	Dark-rumped P	1	NW			
1250	Sooty Tern	1	NW		immature	
1413	shear/petrel	1	NW			
1445	Red-tailed Tropicb.	1			sitting on water very pale	
JFP 1450	Dark-rumped P.	5+	⊙		feeding	
JFP 1500	Dark-rumped P.	3	⊙		1 sailed at least to height of top of mast	
JFP 1505	Dark-rumped P.	1			sitting	
JFP 1507	Dark-rumped P.	1	S			
JFP 1530	Dark-rumped P.	4	⊙		sitting	
JFP 1550	Dark-rumped P.	1	NW			
JFP 1640	Dark-rumped P.	4	E			
1650	Shear-Petrel	1	E			
JFP 1652	Dark-rumped P.	1	S			
1653	<del>shear/petrel</del> <sup>shear/petrel</sup>	1	S		Seen by capt. All looks "smaller than wedgetail", glided whole time seen, lighter brown patches under wings	
JFP 1700	Dark-rumped P.	1	SE			
JFP 1705	Dark-rumped P.	1	SE			
JFP 1711	Dark-rumped P.	1	SE			
JFP 1726	Dark-rumped P.	1	NE			
1800	shear/petrel	1	W			
JFP 1820	Dark-rumped P.	1	N			
Pat 1826	White-necked P.	1	SE			
1840	end observations					



DATE 28 July 64  
Pg. # 1

time	species	#	dir.	hgt.	remarks	loc.
0520	begin observations					
0555	Dark-rumped P. 4 White-headed P. 1 Petrel sp. 1				sitting same size + shape as Dark-rumps. Dark brown above, light brown below, lighter about head. Underwings dark brown around edges and light brown in middle. Flew like Dark-rump. Back spotty, possibly molting	
0600	Petrel sp.	1	W		all dark petrel, slightly smaller than Wedgetail, typical petrel flight, underparts not clearly seen, but perhaps light patches underwings. sat once on water.	
0606	Dark-rumped P.	1	NW			
0630	Dark-rumped P. 5 White-headed P. 1		⊙		not feeding - 2 Dark-rumps put on aerial display, one chasing the other round + round, inches behind it.	
0632	Dark-rumped P.	1	W			
0744	petrel sp.	1	N			
0821	Dark-rumped P.	1	W			
0827	Shear-Petrel	1	N			
0849	Dark-rumped P.	2	N		sitting on water	
0912	Sooty Tern 3 Dark-rumped P. 4 Shearwater 1 Petrel sp. 1		NE		Feeding All dark, smaller than wedgetail. Flew with fairly high arcs, flapped seldom. Flaps fairly stiff.	
0950	Shear/petrel	1			seen by watch	
0954	Fairy Tern	1	N			
1200	R.I. Tropicbird	1	S			
1342	Shear/petrel	1	N			
1335	Dark-rumped P.	2	SE			
1337	White-tailed Tropicbird	1			crossed in front of <sup>SS.</sup> San Benito at 1/2 to 3/4 mi.	
1350	Dark-rumped P.	1				
1700	Sooty Terns 50 ± 5 Dark-rumped P. 25 ± 5 Kermadec Petrel 2 Fairy Tern 1 Shear-Petrel 1				feeding dark phase size of Bonin Is P, but thinner, darker on back, more contrast, underwing white with black edges, undertail coverts white Audubon's S.?	

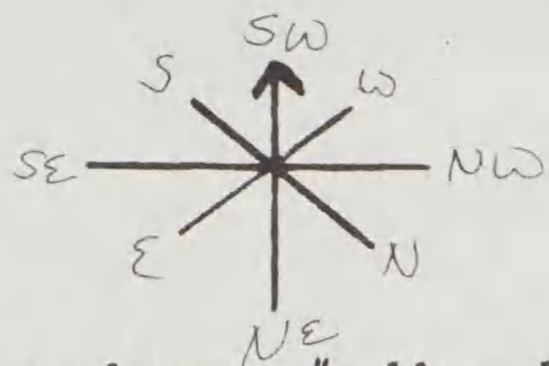
9  
68  
47  
13  
210  
147



DATE 28 July 64  
Pg. # 2

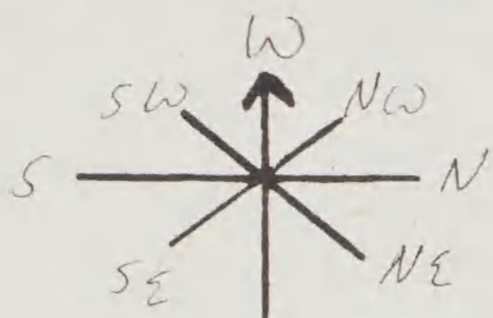
time	species	#	dir.	hgt.	remarks	loc.
1459	Sooty Terns	15	±S		Dark rumped P. probably breeding	
	Petrel sp	10				
	Shear-Petrel	2				
1534	Dark rumped P.	1	W			
1630	Red-tailed Tropicb.	1	N			
1705	Shear Petrel	2	±W		way off, possibly flock	
1738	Shear Petrel	1	±W			
1855	and observations					





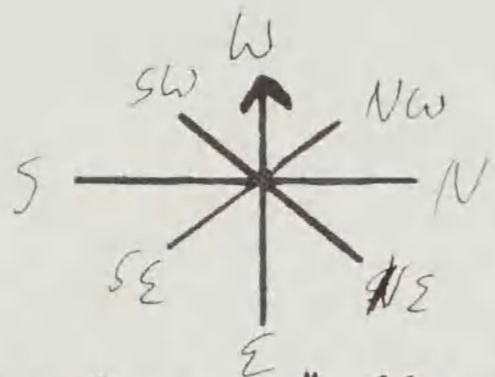
DATE 29 July 64  
Pg. # 10

time	species	#	dir.	hgt.	remarks	loc.
0523	begin observations					
0735	Shear-Petrel	2	S			
0815	Sooty Tern	2	⊙		immature	
0850	Red-tailed Tropicb	1			sitting, pink	
0930	Red-tailed Tropicb	1			sitting, pink	
JFP 0949	Dark-rumped P	1	S			
1015	Fairy Tern	1	NW			
1222	Bulwers P	1	S		Identified by watch (Ternite)	
1240	Shear-Petrel	1	W			
1330	Red-tailed Tropicbird	1	N			
JFP 1547	Dark-rumped P	1	SE		Molting	
1627	Sooty Tern	3	S		1 adult, 2 immatures	
1654	Shear-Petrel	1	S		Looked all dark, flew <del>with</del> like a Bonin's P, didn't flap very often, Long distance off.	
1714	White-tailed Tropicb	1	⊙			
1810	Sooty Tern	150 ± 50				
	Shear/petrel	47 ± 20				
JFP	Dark-rumped P.	3+				
1900	end observation					



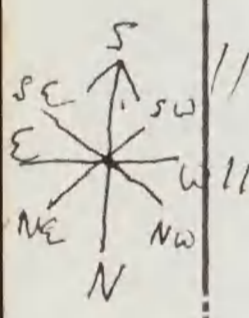
DATE 30 July 64  
Pg. # 1

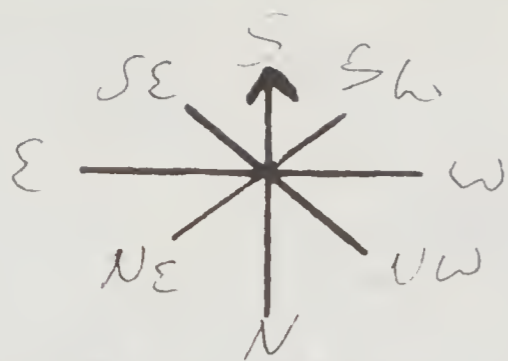
	time	species	#	dir.	hgt.	remarks	loc.
	0525	shear/petrel	3			seen by watch	
	0555	<del>BWP</del> begin observations					
BWP	0615	Bonin ESP	1	N			
	0635	Red-tailed Tropicbird	1	N			
	0637	Red-footed Booby	1	E		immature	
	0650	Red-tailed Tropicbird	1	E			
	0810	w.t. Tropicbird	1	SE			
	0904	R.T. Tropicbird	1	⊙			
	1010	Shear/petrel	1	-		seen by watch on far side of drogue at distance of 1.0 mi very small at that distance	
	1050	shear/Petrel	1	SW			
	1605	White-tailed Tropicbird	1	E			
	1655	Sooty Tern	5	E		travelling flock	
	1656	Bulwer's Petrel	1	S			
	1730	Tropicbird sp	1	SW			
	1737	Bulwer's Petrel	1	SW			
	1905	End observations					



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Pg. #

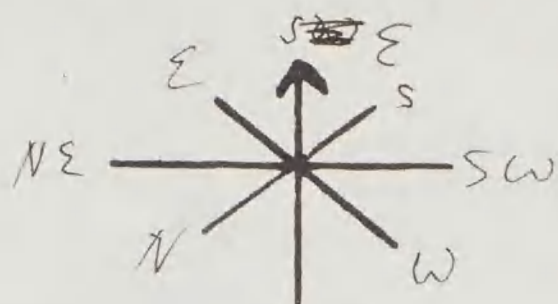
time	species	#	dir.	hgt.	remarks	loc.
0600	begin observations					
0522	Newells S	1	W		Seen by watch (Ternite)	
0550	Newells S	1	W		Seen by watch	
BWP 0610	<del>Bonin's P.</del> Wedgetail	1	W		Light seen by watch	
0715	wedgetail	1	SW		Light	
0718	Bonin's Petrel	1	W			
0722	Newells S	1	NW			
0735	Wedgetail	1	W		Light	
0850	4" squid (a small school of 10)				jumped 3 ft out of water in front of bow	
0950	Shear-Petrel	1	SW			
1050	Sooty Terns Wedgetails Shear-Petrel Frigate	10 7 3 1	W		Feeding	
1120	Red-tailed Tropicbird	1				
1158	Kermadec P.?	1	⊙ E		white probably sitting in water. all dark - white patches under wing - chunky. flapped very often flying into wind. underparts not clearly seen	
1230	Red Tailed Tropicbird	1	E			
1333	Wedgetail	1	NW		Light	
1500	Sooty Tern Shear/petrel Fairy Tern Frigate	25 5 1 1			feeding	
1655	Fairy Tern	2	S			
1702	White-tailed Tropicbird	1	SE		no tail	
1725	shear/petrel	1	NW		white underparts including underwing + undertail, slightly smaller than Wedgetail, dark above, sharp contrast, flight petrel like arcs, but long and directional.	
1800	Newells S.	2	S W			
1814	Shear Petrel	1	S W			
1820	Frigate Sooty Tern	2 3+			feeding flock at distance	





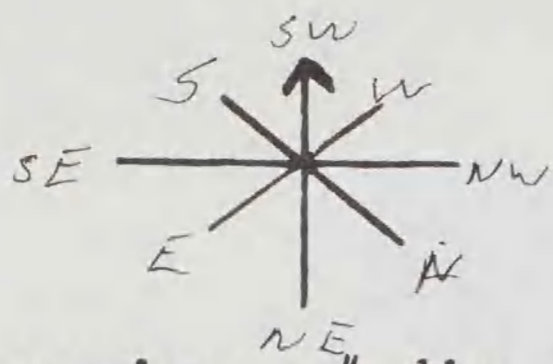
DATE 31 July 64  
Pg.# 2

time	species	#	dir.	hgt.	remarks	loc.
1825	Shear/petrel	1	SW			
1842	Sooty Tern	2	E			
1930	Wedgetail	1			light	
1930	end observations					



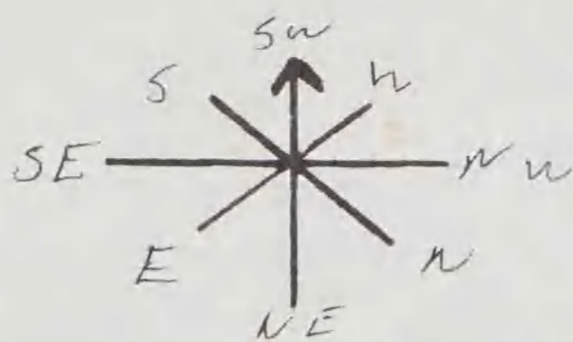
DATE 1 Aug 69  
Pg. # 10

time	species	#	dir.	hgt.	remarks	loc.
0605	begin observations					
0617	White-tailed Tropicbird	1	NEW			
0618	Sooty Tern	1	NEW			
0622	Sooty Tern	1	NEW			
0623	Wedgetail	1	NEW			
0625	Sooty Tern	1	NEW		light	
0630	Newell's S.	2	N			
0632	Noddy Tern	1	NEW			
0645	Sooty Tern	4	NEW		no flock	
	Noddy Tern	1				
0650	Noddy Tern	3	NEW		no flock	
	Sooty Tern	2				
0652	Sooty Tern	1	NEW			
0655	Noddy Tern	2	NEW			
	Sooty Tern	2				
0658	Sooty Tern	1	NEW			
	Shear/petrel	2				
0700	Red-tailed Tropicbird	1			sitting	
0705	Wedgetail	1	NEW		light	
0708	Noddy Tern	1	N			
0711	Sooty Tern	3	NEW			
0723	Noddy Tern	4	N			
0725	Newell's S	1	W			
0729	Noddy Tern	2	NW			
0735	Noddy Tern	10				
	Wedgetail	3	N		travelling flock	
0742	Noddy Tern	50 ± 5				
	Sooty Tern	2			feeding flock	
	Wedgetail	7				
0752	Noddy Tern	1	N			
0755	Noddy Tern	1	W			
0800	Wedgetail	1	E		Dark	
0802	Wedgetail	1	W		Light	
0803	<del>Common</del> Noddy Tern	1	E			
0804	Wedgetail	1	W			
0805	Wedgetail	1	E			



DATE 1 August 64  
Pg. # 2

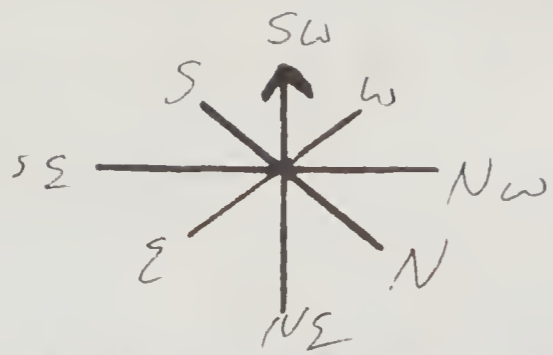
time	species	#	dir.	hgt.	remarks	loc.
0806	Noddy Tern	1	w			
0808	Wedgetail	1	w		Light	
0809	Wedgetail	1	SW		Light	
0810	Noddy Tern	3	w			
	Wedgetail	1			Light	
0811	Noddy Tern	2	w			
0813	Wedgetail	1	w		Light	
0814	Wedgetail	1	S		Light	
0816	Wedgetail	2	SW		Light	
0817	Noddy Tern	2	S			
0818	Wedgetail	2	w		Light	
0820	Noddy Tern	2	S			
0821	Wedgetail	1	w		Light	
0822	Noddy Tern	1	SW			
0823	Noddy Tern	1	S			
0824	Wedgetail	1	w		Light	
0825	R.T. Tropicbird	1	SE			
0827	Bulwers P.	1	S			
0828	Wedgetail	2	w		Light	
0829	Noddy Tern	1	S			
0830	Wedgetail	1	NW		Light	
0832	Wedgetail	3	w		Light	
0833	Wedgetail	2	SW		Light	
0834	Wedgetail	1	NW		Light	
0835	Wedgetail	3	w		Light	
0836	Noddy Tern	3	w			
0837	Wedgetail	2	NW		Light	
0838	Noddy Tern	2	S			
0839	Wedgetail	2	NW		Light	
0840	Wedgetail	5	SW		Light	
0841	<del>Com</del> Noddy Tern	2	w			
0842	Wedgetail	2			Light	
0843	Wedgetails	5	NW		Travelling Flock	
	Booby, Red Foot	1				
0844	Wedgetail	5	SW		Not a Flock	
0846	Noddy Tern	2	w			
0847	Wedgetail	1	w		Light	
0848	Wedgetail	1	w		Light	
0849	Wedgetail	1	N		Light	
0850	Wedgetail	2	SW		Light	
0851	Bulwers P.	1	S			



DATE 1 August 64  
Pg. # 3

time species # dir. hgt. remarks loc.

time	species	#	dir.	hgt.	remarks	loc.
0852	Noddy Tern	1	SW			
0853	Bulwers	1	W			
0854	Wedgetail	2	NW		Light	
0855	Noddy Tern	1	W			
0856	Wedgetail	1	W		Light	
0858	Noddy Tern	1	W			
0900	Wedgetails	2	W		Light	
0902	Wedgetail	1	W		Light	
0903	Noddy Tern	1	NW			
0904	R.F. Booby	1	W			
0905	Wedgetail	2	NW		Light	
0907	Noddy Tern	1	SW			
0908	Noddy Tern	5	W		Not a flock	
0910	Bulwers P	1	NW			
0911	Noddy Tern	3	S			
0912	Wedgetail	2	NW		Light	
0913	Noddy Tern	1	N			
0915	Wedgetail	1	W		Light	
0916	Wedgetail	1	W		Light	
0918	Noddy Tern	1	S			
0920	R.F. Booby	1	W			
0922	Wedgetail	1	NW		Light	
0923	Noddy Tern	1	NW			
0924	Noddy Tern	1	NW			
0925	Noddy Tern	1	<del>NW</del>			
0926	Wedgetail	3	W		Light	
0927	Bulwers P	1	W			
0928	Wedgetail	1	S		Light	
0929	Wedgetail	2	W		Light	
0932	Noddy Tern	1	NW			
0940	Bulwers P	1	NW			
0941	Wedgetail	1	SE		Light	
0942	Brown Booby	2	NW			
0943	Noddy Tern	8	NW			
0945	Wedgetail	1				
	Noddy Tern	3	NW			
0948	Sooty Tern	2				
	Noddy Tern	10	NW		Light not a flock	
	Wedgetail	1				
0950	Noddy Tern	2	NW			
0953	Noddy Tern	1	SE			
0954	Noddy Tern	2	NW			
0955	Noddy Tern	60			feeding flock	



DATE 1 Aug 64  
Pg. # 4

time species # dir. hgt. remarks loc.

1000	Wedge tail	2					
1002	Noddy Tern	4	SE				
1004	Noddy Tern	2	SE				
1008	Noddy Tern	2	SE				
1010	Sooty Tern	1	SE				
1013	Red-footed Booby	1	SE				
	Noddy Tern	1	SE				
1015	Red-footed Booby	1					
	Noddy Tern	6	SE		not a flock		
1020	Sooty Tern	1					
	Noddy Tern	1	S				
1021	Noddy Tern	1	N				
1023	Noddy Tern	3	SW				
1024	Sooty Tern	3	NE				
1030	Noddy Tern	4			perched on small branch		
1034	Sooty Tern	2	S				
1036	Noddy Tern	1	S				
1037	Noddy Tern	1	N				
1042	Noddy Tern	1	E				
1104	59	End Observations					